# Table of Contents


## Part I Introduction 1

1 Technical Support ... 2
2 Trial License Limitations ... 3
3 Information in Web and References ... 3

## Part II Features - Stimulsoft Reports Product Line 4

1 Designers ... 4
- Barcode ... 4
- Charts ... 7
- Components ... 9
- Controls ... 11
- Report Wizards ... 12
- Functions ... 13
- System Variables ... 18

2 Viewers ... 20
- Exports ... 20
- Features ... 22

3 Products ... 24
- Importing Utilities ... 24
- Database Packs ... 24
- Localizations ... 26
- User Interface ... 27
- Reporting Features ... 28
- Tools ... 34
- Product Comparison ... 35
- System Requirements ... 36
- Reports ... 39

## Part III Features - Stimulsoft ReportsFx Product Line 40

1 Designers ... 40
- Barcode ... 40
- Charts ... 42
- Components ... 44
- Report Wizards ... 45
- Functions ... 46
- System Variables ... 48

2 Viewers ... 49
- Exports ... 49
- Viewer Features ... 51

3 Products ... 52
- Importing Utilities ... 52
- Database Packs ... 53
- Localizations ... 54
- User Interface ... 55


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Reporting Features ... 56
Tools ... 61
Product Comparison ... 61
System Requirements ... 62
Reports ... 63

Part IV Getting Started 64

1 Simple List Report ... 64
2 Master-Detail Report ... 71
3 Report with Groups ... 78
4 Report with Columns on Page ... 83
5 Report with Columns in Data Band ... 89
6 Report with Chart on Page ... 99
7 Report with Chart in Data Band ... 105
8 Report with Cross-Tab on Page ... 115
9 Cross-Tab Report in Data Band ... 121
10 Hierarchical Report ... 133
11 Report with Sub-Report ... 139
12 Side-by-Side Report ... 146
13 Report with Sub-Reports in Data Band ... 153
14 Master-Detail Report and Sub-Reports ... 161
15 Report with Empty Band ... 169
16 Drill-Down Report Using Page in Report ... 175
17 Drill-Down Report Using External Report ... 182
18 Report without Bands ... 193
19 Report with Multiple Pages in Template ... 196
20 Report with Segmented Pages ... 207
21 Report with Primitives on Page ... 214
22 Report with Primitives in Band ... 220
23 Report with Cross-Primitives ... 228
24 Drill-Down Report ... 234
25 Report with Dynamic Data Sorting in Preview ... 240
26 Report With Dynamic Collapsing in Preview ... 250
27 Report with Table Component ... 256
28 Master-Detail Report with Table ... 261
29 Anchors in Report ... 267
30 Invoice Report ... 279
31 Invoice Report With Parameters ... 286

Part V Report Internals 293

1 Expressions ... 294

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**Text Expressions** 294
**Calculating Values in Expressions** 294
**Multi-line Expressions** 295
**Using Dictionary Variables** 296
**Using Data Fields** 297
**Using Component Properties** 299
**Using Functions in Expressions** 299
**Conditional Expressions** 301
**Using Aliases in Expressions** 301
**2 Appearance** 303
**Background Brushes** 303
**Fonts and Font Brushes** 304
**Borders** 306
Simple Borders 306
Advanced Borders 309
Conditional Borders 311
**Horizontal Alignment** 311
Horizontal Text Alignment 312
Horizontal Image Alignment 312
**Vertical Alignment** 313
Vertical Text Alignment 313
Vertical Image Alignment 313
**Styles** 314
**Alternate Row Styles** 316
**UseParentStyles Property** 317
**Style Designer** 317
Toolbar 318
Creating Collection of Styles 319
Nesting Level 320
Conditions 321
**3 Conditional Formatting** 324
**Value Condition** 325
**Operators** 326
**Expression Condition** 328
**Multi Part Conditions** 329
**Defining Formatting** 329
**Conditional Formatting and Text Components** 330
**Conditional Formatting and Cross-Tables** 330
**Visual Styles Menu** 331
Font Name 332
Font Size 334
Font Bold 336
Font Italic 338
Font Underlined 340
Text Color 342
Back Color 344
Borders 346
Enabling Component 348
Assigning Expression 350
**Data Bar Condition** 352
**Color Scale Condition** 355
**Icon Set Condition** 358
**4 Output Text Parameters** 362

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Text Editor 362
Multiline Text 364
Trimming in the End of Text Line 365
Prevent Showing Incompletely Visible Lines 366
Lines of Underlining 366
Maximal Number of Lines 367
Text Rotation 367
Processing Duplicates 368
Ignoring Null Values 371
ReportTo Property 371
Output Text Only without Taking Expressions into Consideration 373
Expression Processing in the End of Report Rendering 374
Zip code 374
5 Text Formatting 375
Standard Formatting 376
Numerical Formatting 377
Currency Formatting 378
Date Formatting 380
Time Formatting 380
Percentage Data Formatting 381
Boolean Values Formatting 383
Custom Formatting 383
Formatting in Text 384
6 HTML Tags 385
HTML <font> Tag 387
Color Parameter 387
Face Parameter 388
Size Parameter 389
HTML Tags to Change Font Style 389
HTML <b> Tag 390
HTML <i> Tag 391
HTML  Tag 391
HTML <u> Tag 391
HTML <s> Tag 392
HTML <sup> Tag 392
HTML <sub> Tag 393
HTML  Tag 393
HTML <p> Tag 393
HTML <br> Tag 394
HTML <ol> Tag 394
HTML <ul> Tag 394
HTML <background-color> Tag 395
HTML <text-align> Tag 395
HTML <letter-spacing> Tag 396
HTML <word-spacing> Tag 396
HTML <line-height> Tag 396
Special Characters 397
7 Rich Text Output 400
Rich Text Editor 401
Expressions in Rich Text 402
Loading Rich Text From Data Field 403
8 Graphic Information Output 404
Loading Images 406

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**Image Stretching** ... 408
**Resources of Images** ... 409
**9 Autosize** ... 413
**Automatically Resizing Text** ... 414
**Automatically Resizing Panels** ... 415
**Automatically Resizing Bands** ... 416
**Binding Bottom Border of Component** ... 417
**Automatically Shifting Components** ... 419
**10 Bar-codes** ... 421
**Bar-code Size** ... 423
**Linear Bar-codes** ... 424
EAN/UPC Based ... 424
What is EAN.UCC System? ... 425
UPC-A ... 425
UPC-E ... 426
EAN-13 ... 426
EAN-8 ... 427
Add-On Symbols ... 428
EAN-128 ... 429
ITF-14 ... 430
JAN-13 ... 430
JAN-8 ... 431
ISBN-10 ... 431
ISBN-13 ... 432
Other Barcodes ... 433
Pharmacode ... 433
Plessey ... 433
Msi ... 434
2of5 ... 435
FIM ... 435
Codabar ... 437
Postnet ... 437
Australia Post 4-state ... 438
Royal TPG Post KIX 4-State ... 438
Royal Mail 4-state ... 439
Code11 ... 440
Code39 ... 441
Code93 ... 442
Code128 ... 442
Barcode Comparison Table ... 443
**2D Barcodes** ... 446
PDF417 ... 446
Datamatrix ... 447
QR Code ... 449
**11 Bands** ... 450
**Band Types** ... 451
Standard Bands ... 451
Cross-bands ... 454
**Output Order of Bands** ... 454
**12 Creating Lists** ... 456
**Data Band** ... 456
**Data Source of Data Band** ... 457
**List Output** ... 461

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List with Header ... 463
List with Footer ... 464
KeepHeaderTogether Property ... 465
KeepFooterTogether Property ... 465
Enumeration in Lists ... 466
Selecting Rows One After Another ... 468
Events and Data Band ... 470
Data Sorting ... 471
Data Filtering ... 473
Lists One After Another ... 477
PrintOn Property ... 479
PrintOnEvenOddPages Property ... 480
PrintOnAllPages Property ... 481
PrintAtBottom Property ... 482
Drag and Drop From Dictionary ... 483
Check Box ... 485

13 Creating Master-Detail Lists ... 486

MasterComponent Property ... 488
DataRelation Property ... 489
Relation ... 489
Multilevel Nesting ... 493
KeepDetailsTogether Property ... 494
Rows Numbering in Master-Detail Reports ... 495
Through Lines Numbering in Master-Detail Reports ... 497
Headers, Footers and Master-Detail Reports ... 498
PrintifDetailEmpty Property ... 499

14 Groups ... 500

Grouping Conditions ... 501
GroupHeaderBand ... 502
GroupFooterBand ... 503
Data Sorting in Group ... 504
GroupFooter ... 506
KeepGroupTogether Property ... 507
KeepGroupHeaderTogether Property ... 508
KeepGroupFooterTogether Property ... 509
Events and GroupHeaderBand ... 510
Group Without GroupHeader ... 510
Nested Groups ... 510
Groups Without GroupFooter ... 511
LineThrough System Variable ... 512
Numbering Rows in Group ... 512
GroupLine System Variable ... 513
Combining Groups and Master-Detail Reports ... 514

15 Page Bands ... 514

PageHeader Band ... 514
PageFooter Band ... 516
PrintOnEvenOddPages Property ... 518

16 Report Bands ... 520

ReportTitleBand ... 520
ReportSummaryBand ... 520
ReportTitleBand Property ... 521
KeepReportSummaryTogether Property ... 522
Print At Bottom Property ... 522

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**Print If Empty Property** ... 524
**17 Columns** ... 525
**Columns on Page** ... 525
**Columns on Data Band** ... 528
AcrossThenDown Mode ... 529
DownThenAcross Mode ... 531
Minimal Number of Rows in Column ... 534
ColumnHeader Band ... 535
PrintIfEmpty Property ... 536
ColumnFooter Band ... 537
PrintIfEmpty Property ... 538
Header and Footer Combinations ... 538
AcrossThenDown Column Mode ... 539
DownThenAcross Column Mode ... 540
**18 Page and Column Break** ... 541
**Page Break** ... 541
**Column Break** ... 543
**Break if Less Than Property** ... 547
**Skip First Property** ... 547
**19 Pagination** ... 547
**Page Number** ... 547
**Total Page Count** ... 548
**Page NofM** ... 548
**ResetPageNumber Property** ... 549
**Sequentially Numbered Pages** ... 551
**20 Breaking Component** ... 553
**Breaking Bands** ... 553
**Breaking Text** ... 555
**Breaking Panels** ... 557
**Breaking RichText** ... 559
**Breaking Images** ... 560
**Auto-break** ... 561
**Breaking and Page Bands** ... 562
**21 Hierarchical Band** ... 562
**Data Output** ... 562
**KeyDataColumn Property** ... 563
**MasterKeyDataColumn Property** ... 563
**ParentValue Property** ... 564
**Indent Property** ... 565
**22 Child Band** ... 567
**Multi Line Header** ... 568
**Child Band and Data** ... 570
**KeepChildTogether Property** ... 570
**23 Empty Band** ... 572
**Empty Band Modes** ... 573
**24 Watermarks** ... 575
**Watermark Property** ... 575
**Overlay Band** ... 577
Vertical Alignment Property ... 578
**Direct Allocation on Page** ... 580
**25 Panels** ... 581

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**Placing Bands on Panel** ... **581**
**Placing Panels** ... **582**
Placing Panels on Page ... 582
Placing Panels on Band ... 583
Placing Panels on Panel ... 583
**Side-by-Side Reports** ... **583**
**Multiple Tables on One Page** ... **585**
**Cloning** ... **586**
**26 Cross-Tab** ... **587**
**Data Source Property** ... **587**
**Cross Table Items** ... **589**
Columns ... 589
Rows ... 591
Summary Cells ... 594
**Cross Table Editor** ... **597**
**Data Summary Types** ... **599**
**Sort Direction** ... **599**
**Conditions** ... **600**
**Showing Totals** ... **601**
**Processing Values for Summary** ... **603**
**Word Wrap** ... **603**
**27 Charts** ... **604**
**Charts Properties** ... **614**
**Area** ... **644**
Doughnut ... 645
Series Labels ... 645
Pie ... 646
Series Labels ... 647
CutPieList Property ... 649
**Legend** ... **650**
Title Property ... 650
HorizontalAlignment Property ... 651
VerticalAlignment Property ... 652
HorizontalSpacing and VerticalSpacing Properties ... 654
Marker ... 655
Direction Property ... 655
Columns Property ... 656
Marker Alignment Property ... 656
MarkerVisible Property ... 657
**Axes Area** ... **657**
Axes ... 658
Arrow Style Property ... 659
Labels ... 660
Angle Property ... 661
Format Property ... 662
Placement Property ... 664
TextAlignment Property ... 665
Range Property ... 666
Visible Property ... 667
StartFromZero Property ... 669
Ticks ... 670
Minor ... 671
Step Property ... 672

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Title Property ... 673
Alignment Property ... 674
ReverseVertical Property ... 675
ReverseHorizontal Property ... 676
ColorEach Property ... 677
**Series ... 678**
Data Connection ... 678
Data Column ... 678
Expressions ... 679
List of Values Property ... 680
AutoSeries ... 681
Filters ... 682
Conditions ... 684
Series Editor ... 685
Axis Y ... 686
Top N ... 688
**Series Labels ... 692**
Series Labels Appearance ... 692
Brush Property ... 692
Font Property ... 694
LabelColor Property ... 695
UseSeriesColor Property ... 696
Angle Property ... 697
Draw Border Property ... 698
BorderColor Property ... 699
Antialiasing Property ... 699
Format Property ... 700
ValueType Property ... 702
ValueType Separator ... 705
PreventIntersection Property ... 705
Show OnZeroValues Property ... 706
Step Property ... 707
TextBefore and TextAfter Properties ... 708
Visible Property ... 709
Marker ... 710
MarkerVisible Property ... 711
MarkerSize Property ... 712
MarkerAlignment Property ... 712
**Style ... 713**
Allow ApplyStyle Property ... 713
**28 Table ... 714**
**Columns ... 714**
**Rows ... 714**
**Data Source ... 715**
**MasterComponent Property ... 716**
**Relation Property ... 718**
**Tables and Bands in Master-Detail Lists ... 719**
**Tables and Grouping ... 720**
**Table Header ... 720**
**Table Footer ... 721**
**Cells Width Autochange ... 721**
AutoWidth Property ... 721
AutoWidthType Property ... 721
**FixedWidth Property ... 723**

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CellType Property ... 724
29 Primitives ... 725
Cross-Primitives ... 726
30 Sub-Reports ... 727
Sub-Reports on Page ... 728
Sub-Reports on Data Band ... 729
Master-Detail Reports and Sub-Reports ... 730
Side-by-Side Reports and Sub-Reports ... 732
31 Totals ... 736
Calculation of Totals Associated with Bands ... 737
Totals Output in Any Part of Report ... 737
Type of Result of Total Function ... 737
Expression with Aggregate Functions ... 738
Calculating Totals by Page ... 740
Calculating Totals by Column ... 741
Calculating Totals in Code of Report Events ... 742
Invisible Bands ... 744
Totals and Automatic Change of Size ... 744
Calculating Totals in Master-Detail Reports ... 744
Syntax of Aggregated Functions ... 747
Totals with Condition ... 748
Calculation of Totals not Associated with Bands ... 748
32 Interaction ... 751
Bookmarks ... 751
Tree of Bookmarks ... 752
Bookmarking Using Code ... 753
Creating Bookmarks Using Expression ... 755
Bookmark Nesting ... 757
Hyperlinks ... 758
Hyperlink to Another Component in Report Using Interaction.Bookmark ... 758
Hyperlink to Another Component in Report Using Interaction.Tag ... 758
Hyperlink to External Documents ... 758
Drill-Down Reports ... 759
Drill-Down Report Using Report Pages ... 760
Drill-Down Reports Using External Report ... 762
Interactive Selection ... 764
Drill-Down Parameters ... 765
Dynamic Sorting ... 766
Dynamic Collapsing ... 768
Reports with Contents ... 770
Editing ... 774
Part VI Data 775
1 Data Dictionary ... 775
Control Panel ... 775
Menu Actions ... 776
Menu New Item ... 778
Data Sources ... 779
Queries ... 780
Parameters ... 781
Query Builder ... 784
Creating Data Source ... 786

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Creating and Editing Data Columns ... 794
Calculated Data Column ... 795
Data From Other Data Source ... 797
Data From Cross-Tab ... 800
**Relation ... 802**
Filtering ... 804
Sorting ... 805
Showing Information ... 806
Master-Detail Report ... 807
Creating Relation ... 809
Limitations in Creating Relations ... 811
**Variables ... 811**
Panel Request From User ... 814
Items Dialog ... 815
Dependent Variables ... 815
New Variable ... 822
Nullable Value ... 823
List ... 824
Range ... 826
Three Modes of Variable Functioning ... 827
**Connection ... 831**
**Panel Setup ... 834**
**System Variables ... 834**
**Business Object ... 835**

# Part VII Report Designer 838

## 1 Ribbon UI ... 838

**Main menu ... 838**
Menu Item New ... 840
Dialog Report Setup ... 840
Dialog Options ... 842
Recent Documents ... 845
**Tabs ... 845**
Tab Home ... 846
Group Clipboard ... 846
Group Font ... 846
Group Borders ... 847
Group Text Format ... 847
Group Styles ... 847
Group Alignment ... 848
Tab Page ... 848
Group Page Setup ... 848
Group Watermark Text ... 849
Group Watermark Image ... 850
Group Viewing Options ... 850
Tab Layout ... 851
Group Arrange ... 851
Group Dock Style ... 853
Tab Insert ... 853
**Status Bar ... 853**

## 2 Creating Reports in Designer ... 854

**Overview ... 854**
Wizard Standard Report ... 856

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Wizard Master-Detail Report 858
Wizard Label Report 860
Wizard Chart 862
Wizard Cross-Tab 863
3 Panels 864
Dictionary 865
Report Tree 867
Properties 867
4 Keyboard Shortcuts 870
5 Report Checker 872
6 Globalization Editor 874
7 Context Menu 875
8 Previewing Reports 878
9 Toolbox 879
Shortcut Panel 880
10 Wizard Components Placement 881
11 Wizard Drag and Drop 882
12 Google Docs Service 882
Control Panel 884
Saving Reports 885
Opening Reports 885
Part VIII Viewing Reports 886
1 Report Viewer Structure 886
2 Basic Toolbar of Report Viewer 888
3 Page Navigation 888
4 Displaying Mode 889
5 Search Panel 892
6 Keyboard Shortcuts 893
7 Sending Report via E-Mail 893
8 Dot-Matrix Viewer 894
Toolbar 894
Bar Options 895
9 Special Viewing Options in Web 896
Part IX Right To Left 898
1 Text Component 898
2 Text In Cells Component 898
3 Cross Table Component 899
4 Chart Component 901
5 Columns on Page 901
6 Columns in Data Band 903

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# Part X Importing Reports 906

1 Converter ... 906

# Part XI Exports 909

1 Available File Formats ... 909

2 Common Export Settings ... 910

Image Quality ... 910
Image Resolution ... 911
Image Comparer ... 911
Convert Digits to Arabic ... 911
Arabic Digits Type ... 911
Divide Segment Pages ... 911
Remove Empty Space at Bottom ... 912
Use One Page Header and Footer ... 912

3 Export Reports From Code ... 912

Export Formats ... 912
All Export Services ... 913

4 Formats with Fixed Page Layout ... 914

PDF ... 914
Embedded Fonts ... 918
Font Styles ... 918
Digital Signature ... 919
Keys ... 919
Public Key Certificate ... 919
Choosing Certificate ... 919
Placing Digital Signature Identifier ... 920
Encryption ... 920
Passwords and Access Permission ... 920
Key Length ... 920
Compatibility of Different Versions ... 921
XPS ... 921
Microsoft Power Point 2007/2010 ... 922

5 Web Documents ... 924

HTML ... 925
Export Modes ... 926
Export Images in HTML Format ... 926
Compatibility of Different Versions ... 926
Exporting Text Components ... 926
HTML5 ... 928
MHT ... 928

6 Text Formats ... 928

TXT ... 928
Border Types ... 930
Column Width ... 930
New Export Modes ... 930
RTF ... 930
Export Modes ... 932
Table Modes ... 932
Issues ... 933
Compatibility of Different Versions ... 934


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**Word 2007/2010** ... **934**
Headers and Footers ... 936
Page Numbering ... 936
**ODT** ... **937**
**7 Spreadsheets** ... **938**
**Excel** ... **940**
Excel Sheets ... 940
Compatibility of Different Versions ... 941
**Excel XML** ... **941**
**Excel 2007/2010** ... **941**
Sheets in Excel ... 941
**ODS** ... **942**
**8 Data** ... **943**
**CSV** ... **944**
Controlling Exports ... 944
**DBF** ... **945**
Controlling Exports ... 945
**XML** ... **947**
Controlling Exports ... 947
**DIF** ... **948**
**SYLK** ... **948**
**9 Images** ... **948**
**BMP** ... **950**
**GIF** ... **950**
**PNG** ... **950**
**TIFF** ... **951**
**JPEG** ... **951**
**PCX** ... **951**
**EMF** ... **951**
**SVG** ... **951**
**Compressed SVG** ... **952**
**Dither** ... **952**
**10 How to Create Report for Export?** ... **953**
**Index** **0**

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# 1 Introduction

Welcome to the online version of the documentation **Stimulsoft Reports**. This part of documentation describes basic approaches in work with GUI. Here you can find the answers on all your questions, find out about main abilities, master the skills of working with the report designer, viewer and other utilities. Also you will learn how to use the components for designing reports, formatting, filtering, and creating styles for reports.


Welcome to **Stimulsoft**:
- Technical Support
- Trial License Limitations
- Information in Web and References
- Evaluate Demo Version
- Features - Stimulsoft Reports Product Line
- Features - Stimulsoft Reports. Fx Product Line

Reports Designer:
- Ribbon UI 2013
- Creating Reports in Designer
- Keyboard Shortcuts
- Previewing Reports
- More...

Learn more about the basic tools and reporting components:
- Data Band
- Expressions
- Groups
- Creating Lists
- Appearance
- More...

Reports Viewer
- Report Viewer Structure
- Basic Toolbar of Report Viewer
- Dot-Matrix viewer
- Special Viewing Options in Web
- More...

Read the basics of creating reports:
- Simple List Report
- Master-Detail Report
- Report with Chart
- Report with Cross-Tab
- Anchors in Report
- Invoice Report
- More...

Right to Left Mode:
- Text Component
- Columns on Page
- Cross Table Component
- Columns in Data Band
- More...

Work with Data:
- Control Panel
- Connection
- Data Source

Importing Reports:
- Converter


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- Relation
- Variables
- More...

Export Reports:

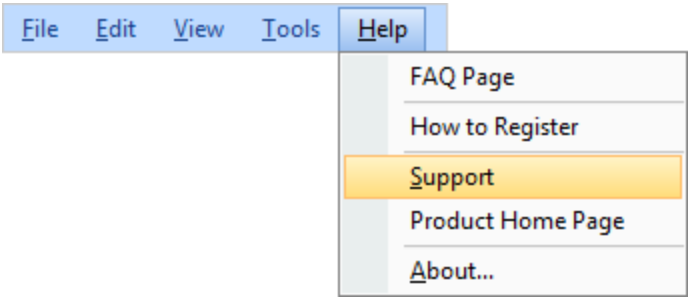
- Available File Formats
- Common Export Settings
- Formats with Fixed Page Layout
- Spreadsheets
- Data
- How to Create Report for Export?
- More...

The second part of the manual contains the description of non-visual parts of products **Stimulsoft**.

## 1.1 Technical Support

Registered users and users who are evaluating the software may get technical support.
For technical questions, use the Email address: support@stimulsoft.com
For licensing, subscription, payment questions, use Email address: sales@stimulsoft.com
For other questions, use Email address: info@stimulsoft.com

If you have problems with our products, you may contact us through our **feedback form** at http://www.stimulsoft.com/en/support
It is possible to send questions from the standard UI of the report designer. To do this, select the **Help** menu -> **Support**.




If you are a registered user and you contact us for technical support, use the same Email address you used when you purchased our product. Otherwise, it will be difficult to identify you as a registered user. This can slow down our response. Please let us know when your Email address changes.

To solve your problem quickly, we need the following information:
- Product name and its version;
- A detailed description of the problem and how to reproduce it;

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- Your operating system (98, ME, 2000, XP, Vista, Window 7 etc.), its version, and the localization of established service packs;
- Version of Microsoft .NET Framework or other development environment and installed service packs;
- A name of your development environment and its version;
- Additional information that can help us solve the problem.

## 1.2 Trial License Limitations

**Trial Versions**
The free trial versions of Stimulsoft Reports are **fully functional** and will work for an unlimited time. The only limitation is a DEMO watermark displayed on each report page.

**Registered Versions**
Developer licenses come with DLL's, which work without license keys. If you have a License for Stimulsoft products, you only need to ensure that you are using the Registered build. If your reports are displaying a DEMO watermark, this means that you are using a trial version of the product. Log in to your account at http://stimulsoft.com/RegisteredUsers.aspx and download the Registered version of the product. Also, please read the following topics:
1. How to upgrade to a new version?
2. How to upgrade to the prerelease build?
3. I have installed new version but nothing changed. What can I do?
4. How to install registered non Demo version of Stimulsoft Reports?

## 1.3 Information in Web and References

This topic describes how to get the information about the latest news and announcements about the software products, as well as information about known problems and issues that users are interested.

The official site of our company can be found at http://www.stimulsoft.com The website has a brief information of the software products http://www.stimulsoft.com/en/products they can be downloaded at http://www.stimulsoft.com/en/downloads where you can download a trial version of the software, as well as weekly minor prerelease builds and various database adapters.

Live demos for testing the products online can be found at:
Stimulsoft Reports.Net http://web.stimulsoft.com
Stimulsoft Reports.Web http://webfx.stimulsoft.com (Flash).
Stimulsoft Reports.Web http://web.stimulsoft.com (Ajax).
Stimulsoft Reports.Silverlight http://websl.stimulsoft.com (Client/Server).
Stimulsoft Reports.Silverlight http://sl.stimulsoft.com (Silverlight).

Video tutorials are available at the following link http://www.stimulsoft.com/en/videos
Latest company and product news are available at http://www.stimulsoft.com/en/news
Knowledgebase with answers on critical questions is available at http://support.stimulsoft.com/index.php?/Knowledgebase/List

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You may read an information on weekly prerelease builds and major versions on the Forum at the following link http://forum.stimulsoft.com/index.php The status of such topics is marked as **Announcement** and is always shown above all forum topics. Also on the forum, you may read and discuss various subjects regarding reporting tools.

Short messages on the latest news of our company can be read on Twitter http://twitter.com/Stimulsoft Facebook http://www.facebook.com/pages/Stimulsoft/166319983418027 and RSS http://www.stimulsoft.com/en/rss
You may subscribe to the newsletters on the Home page of our website.

For getting more information about the product in other online resources, please use the search engines.

# 2 Features - Stimulsoft Reports Product Line

This section describes the basic features of **Stimulsoft Reports** product line. The product line includes the following products:
Stimulsoft Reports.Net
Stimulsoft Reports.Web
Stimulsoft Reports.Wpf
Stimulsoft Reports.Silverlight
Stimulsoft Reports.Ultimate

This section is divided into topics which shows the basic options along every category of features. The lists of features are rough, not complete, and constantly updated, so, concerning the availability of these or that features, please contact technical support managers.

## 2.1 Designers

### 2.1.1 Barcode

The table represents the list of supported bar-codes.

| Barcode | WinForms | WPF | Silverlight | ASP.NET Silverlight | ASP.NET Flash | MVC Flash | MVC HTML5 | Standalone Reports Designer | WinRT | ASP.NET HTML5 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Linear Barcodes** | | | | | | | | | | |
| **EAN/UPC based** | | | | | | | | | | |
| EAN- | + | + | + | + | + | + | + | + | + | + |

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| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 128a | | | | | | | | | | |
| EAN-128b | + | + | + | + | + | + | + | + | + | + |
| EAN-128c | + | + | + | + | + | + | + | + | + | + |
| EAN-128 Auto | + | + | + | + | + | + | + | + | + | + |
| EAN-13 | + | + | + | + | + | + | + | + | + | + |
| EAN-8 | + | + | + | + | + | + | + | + | + | + |
| ISBN-10 | + | + | + | + | + | + | + | + | + | + |
| ISBN-13 | + | + | + | + | + | + | + | + | + | + |
| ITF-14 | + | + | + | + | + | + | + | + | + | + |
| JAN-13 | + | + | + | + | + | + | + | + | + | + |
| JAN-8 | + | + | + | + | + | + | + | + | + | + |
| UPC-A | + | + | + | + | + | + | + | + | + | + |
| UPC-E | + | + | + | + | + | + | + | + | + | + |
| UPC-Sup2 | + | + | + | + | + | + | + | + | + | + |
| UPC-Sup5 | + | + | + | + | + | + | + | + | + | + |
| **Other linear bar-codes** | | | | | | | | | | |
| Australia Post 4-state | + | + | + | + | + | + | + | + | + | + |
| Royal Mail 4-state | + | + | + | + | + | + | + | + | + | + |
| Code 11 | + | + | + | + | + | + | + | + | + | + |
| Code 128a | + | + | + | + | + | + | + | + | + | + |
| Code 128b | + | + | + | + | + | + | + | + | + | + |

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|---|---|---|---|---|---|---|---|---|---|---|
| Code 128c | + | + | + | + | + | + | + | + | + | + |
| Code128 Auto | + | + | + | + | + | + | + | + | + | + |
| Code 39 | + | + | + | + | + | + | + | + | + | + |
| Code 39 Extended | + | + | + | + | + | + | + | + | + | + |
| Code 93 | + | + | + | + | + | + | + | + | + | + |
| Code 93 Extended | + | + | + | + | + | + | + | + | + | + |
| Codabar | + | + | + | + | + | + | + | + | + | + |
| Royal TPG Post KIX 4-State | + | + | + | + | + | + | + | + | + | + |
| FIM | + | + | + | + | + | + | + | + | + | + |
| 2 of 5 Interleaved | + | + | + | + | + | + | + | + | + | + |
| Msi | + | + | + | + | + | + | + | + | + | + |
| Pharmacode | + | + | + | + | + | + | + | + | + | + |
| Plessey | + | + | + | + | + | + | + | + | + | + |
| Postnet | + | + | + | + | + | + | + | + | + | + |
| 2 of 5 Standard | + | + | + | + | + | + | + | + | + | + |
| **2D Barcodes** | | | | | | | | | | |
| DataMatrix | + | + | + | + | + | + | + | + | + | + |

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| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| PDF417 | + | + | + | + | + | + | + | + | + | + |
| QR Code | + | + | + | + | + | + | + | + | + | + |

## 2.1.2 Charts

The table below shows the chart types supported in the reporting tool.

| Charts | | | Win Forms | WPF | Silverlight | ASP.NET Silverlight | ASP.NET Flash | MVC Flash | MVC HTML5 | Standalone Reports Designer | Win RT | ASP.NET HTML5 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Column Area** | | Clustered Column | + | + | + | + | + | + | + | + | + | + |
| | | Stacked Column | + | + | + | + | + | + | + | + | + | + |
| | | Full-Stacked Column | + | + | + | + | + | + | + | + | + | + |
| **Bar Area** | | Clustered Bar | + | + | + | + | + | + | + | + | + | + |
| | | Stacked Bar | + | + | + | + | + | + | + | + | + | + |
| | | Full-Stacked Bar | + | + | + | + | + | + | + | + | + | + |
| **Pie Area** | | Pie | + | + | + | + | + | + | + | + | + | + |
| | | Doughnut | + | + | + | + | + | + | + | + | + | + |
| **Line Area** | | Line | + | + | + | + | + | + | + | + | + | + |
| | | Stepped Line | + | + | + | + | + | + | + | + | + | + |
| | | Stacked Line | + | + | + | + | + | + | + | + | + | + |
| | | Full-Stacked Line | + | + | + | + | + | + | + | + | + | + |

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| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Area** | | Area | + | + | + | + | + | + | + | + | + | + |
| | | Stepped Area | + | + | + | + | + | + | + | + | + | + |
| | | Stacked Area | + | + | + | + | + | + | + | + | + | + |
| | | Full-Stacked Area | + | + | + | + | + | + | + | + | + | + |
| **Gantt Area** | | Gantt | + | + | + | + | + | + | + | + | + | + |
| **Spline** | | Spline | + | + | + | + | + | + | + | + | + | + |
| | | Stacked Spline | + | + | + | + | + | + | + | + | + | + |
| | | Full-Stacked Spline | + | + | + | + | + | + | + | + | + | + |
| **Spline Area** | | Spline Area | + | + | + | + | + | + | + | + | + | + |
| | | Stacked Spline Area | + | + | + | + | + | + | + | + | + | + |
| | | Full-Stacked Spline Area | + | + | + | + | + | + | + | + | + | + |
| **Scatter Area** | | Scatter | + | + | + | + | + | + | + | + | + | + |
| | | Scatter Line | + | + | + | + | + | + | + | + | + | + |
| | | Scatter Spline | + | + | + | + | + | + | + | + | + | + |
| **Bubble** | | Bubble | + | + | + | + | + | + | + | + | + | + |
| **Radar** | | Radar Point | + | + | + | + | + | + | + | + | + | + |
| | | Radar Line | + | + | + | + | + | + | + | + | + | + |
| | | Radar Area | + | + | + | + | + | + | + | + | + | + |

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| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Range** | | Range | + | + | + | + | + | + | + | + | + | + |
| | | Stepped Range | + | + | + | + | + | + | + | + | + | + |
| | | Spline Range | + | + | + | + | + | + | + | + | + | + |
| | | Range Bar | + | + | + | + | + | + | + | + | + | + |
| **Funnel** | | Funnel | + | + | + | + | + | + | + | + | + | + |
| | | Funnel Weighted Slices | + | + | + | + | + | + | + | + | + | + |
| **Financial** | | Candlestick | + | + | + | + | + | + | + | + | + | + |
| | | Stock | + | + | + | + | + | + | + | + | + | + |

### 2.1.3 Components

Components in Stimulsoft Reports are divided into 3 groups. See the table below with the components supported.

| Components | WinForms | WPF | Silverlight | ASP.NET Silverlight | ASP.NET Flash | MVC Flash | MVC HTML5 | Standalone Reports Designer | WinRT | ASP.NET HTML5 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Bands** | | | | | | | | | | |
| Report Title | + | + | + | + | + | + | + | + | + | + |
| Report Summary | + | + | + | + | + | + | + | + | + | + |
| Page Header | + | + | + | + | + | + | + | + | + | + |
| Page Footer | + | + | + | + | + | + | + | + | + | + |
| Group Header | + | + | + | + | + | + | + | + | + | + |

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| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Group Footer | + | + | + | + | + | + | + | + | + | + |
| Header | + | + | + | + | + | + | + | + | + | + |
| Footer | + | + | + | + | + | + | + | + | + | + |
| Column Header | + | + | + | + | + | + | + | + | + | + |
| Column Footer | + | + | + | + | + | + | + | + | + | + |
| Data | + | + | + | + | + | + | + | + | + | + |
| Hierarchical Data | + | + | + | + | + | + | + | + | + | + |
| Child | + | + | + | + | + | + | + | + | + | + |
| Empty Data | + | + | + | + | + | + | + | + | + | + |
| Overlay | + | + | + | + | + | + | + | + | + | + |
| **Cross Bands** | | | | | | | | | | |
| Cross-Tab | + | + | + | + | + | + | + | + | + | + |
| Cross-Group Header | + | + | + | + | + | + | + | + | + | + |
| Cross-Group Footer | + | + | + | + | + | + | + | + | + | + |
| Cross-Header | + | + | + | + | + | + | + | + | + | + |
| Cross-Footer | + | + | + | + | + | + | + | + | + | + |
| Cross-Data | + | + | + | + | + | + | + | + | + | + |
| **Components** | | | | | | | | | | |
| Bar-Code | + | + | + | + | + | + | + | + | + | + |
| Chart | + | + | + | + | + | + | + | + | + | + |
| Check Box | + | + | + | + | + | + | + | + | + | + |

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| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Clone | + | + | + | + | + | + | + | + | + | + |
| Horizontal Line | + | + | + | + | + | + | | + | + | |
| Image | + | + | + | + | + | + | + | + | + | + |
| Panel | + | + | + | + | + | + | + | + | + | + |
| Rectangle | + | + | + | + | + | + | | + | + | |
| Rich Text | + | | + | + | + | | + | + | | + |
| Rounded Rectangle | + | + | + | + | + | + | + | + | + | + |
| Shape | + | + | + | + | + | + | + | + | + | + |
| Sub-Report | + | + | + | + | + | + | + | + | + | + |
| Table | + | + | | + | + | + | + | + | + | + |
| Text | + | + | + | + | + | + | + | + | + | + |
| Text in Cells | + | + | + | + | + | + | + | + | + | + |
| Vertical Line | + | + | + | + | + | + | + | + | + | + |
| Watermark | + | + | + | + | + | + | + | + | + | + |
| Zip Code | + | + | + | + | + | + | + | + | + | + |

### 2.1.4 Controls

See the list below with controls which can be used in creating dialog forms.

| Controls | WinForms | WPF | Silverlight | ASP.NET Silverlight | ASP.NET Flash | MVC Flash | MVC HTML5 | Standalone Reports Designer | WinRT | ASP.NET HTML5 |
|---|---|---|---|---|---|---|---|---|---|---|
| Label | + | + | + | + | + | + | + | + | + | + |

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| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| TextBox | + | + | + | + | + | + | + | + | + | + |
| GroupBox | + | + | + | + | + | + | + | + | + | + |
| Button | + | + | | | + | + | | + | + | |
| CheckBox | + | + | + | + | + | + | + | + | + | + |
| RadioButton | + | + | | | + | + | | + | + | |
| ListBox | + | + | | | + | + | | + | + | |
| ComboBox | + | + | | | + | + | | + | + | |
| LookUpBox | + | + | | | + | + | | + | + | |
| CheckedListBox | + | + | | | | | | + | + | |
| DateTimePicker | + | + | | | | | | + | + | |
| NumericUpDown | + | + | | | + | + | | + | + | |
| PictureBox | + | + | + | + | + | + | + | + | + | + |
| Grid | + | + | + | + | | | + | + | + | + |
| TreeView | + | + | + | + | | | + | + | + | + |
| ListView | + | + | | | | | | + | + | |
| Panel | + | + | + | + | + | + | + | + | + | + |
| RichTextBox | + | + | + | + | + | + | + | + | + | + |

### 2.1.5 Report Wizards

Very important part of the reporting tool is a report wizard. They are used to accelerate report creation. The list below shows which report wizards are supported.

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| Report Wizards | WinForms | WPF | Silverlight | ASP.NET Silverlight | ASP.NET Flash | MVC Flash | MVC HTML5 | Standalone Reports Designer | WinRT | ASP.NET HTML5 |
|---|---|---|---|---|---|---|---|---|---|---|
| Standard Report | + | + | + | + | + | + | + | + | | + |
| Master-Detail Report | + | + | + | + | + | + | + | + | | + |
| Label Report | + | + | + | + | + | + | | + | | |
| Chart | + | + | | | | | | + | | |
| Cross-Tab | + | + | | + | + | + | | + | | |

### 2.1.6 Functions

Here is the list functions supported in Stimulsoft Reports.

| Functions | WinForms | WPF | Silverlight | ASP.NET Silverlight | ASP.NET Flash | MVC Flash | MVC HTML5 | Standalone Reports Designer | WinRT | ASP.NET HTML5 |
|---|---|---|---|---|---|---|---|---|---|---|
| Date | | | | | | | | | | |
| DateDiff | + | + | + | + | + | + | + | + | + | + |
| DateSerial | + | + | + | + | + | + | + | + | + | + |
| Day | + | + | + | + | + | + | + | + | + | + |
| DayOfWeek | + | + | + | + | + | + | + | + | + | + |
| DayOfYear | + | + | + | + | + | + | + | + | + | + |

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| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Hour | + | + | + | + | + | + | + | + | + | + |
| Minute | + | + | + | + | + | + | + | + | + | + |
| Month | + | + | + | + | + | + | + | + | + | + |
| Second | + | + | + | + | + | + | + | + | + | + |
| TimeSerial | + | + | + | + | + | + | + | + | + | + |
| Year | + | + | + | + | + | + | + | + | + | + |
| Math | | | | | | | | | | |
| Abs | + | + | + | + | + | + | + | + | + | + |
| Asin | + | + | + | + | + | + | + | + | + | + |
| Atan | + | + | + | + | + | + | + | + | + | + |
| Ceiling | + | + | + | + | + | + | + | + | + | + |
| Cos | + | + | + | + | + | + | + | + | + | + |
| Div | + | + | + | + | + | + | + | + | + | + |
| Exp | + | + | + | + | + | + | + | + | + | + |
| Floor | + | + | + | + | + | + | + | + | + | + |
| Log | + | + | + | + | + | + | + | + | + | + |
| Maximum | + | + | + | + | + | + | + | + | + | + |
| Minimum | + | + | + | + | + | + | + | + | + | + |
| Round | + | + | + | + | + | + | + | + | + | + |
| Sign | + | + | + | + | + | + | + | + | + | + |
| Sin | + | + | + | + | + | + | + | + | + | + |

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| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sqrt | + | + | + | + | + | + | + | + | + | + |
| Tan | + | + | + | + | + | + | + | + | + | + |
| Truncate | + | + | + | + | + | + | + | + | + | + |
| Print State | | | | | | | | | | |
| IsNull | + | + | + | + | + | + | + | + | + | + |
| Next | + | + | + | + | + | + | + | + | + | + |
| NextIsNull | + | + | + | + | + | + | + | + | + | + |
| Previous | + | + | + | + | + | + | + | + | + | + |
| PreviousIsNull | + | + | + | + | + | + | + | + | + | + |
| Programming Shortcut | | | | | | | | | | |
| Choose | + | + | + | + | + | + | + | + | + | + |
| IIF | + | + | + | + | + | + | + | + | + | + |
| Switch | + | + | + | + | + | + | + | + | + | + |
| Strings | | | | | | | | | | |
| ToWordsPt | + | + | + | + | + | + | + | + | + | + |
| ToCurrencyWordsPt | + | + | + | + | + | + | + | + | + | + |
| Arabic (int) | + | + | + | + | + | + | + | + | + | + |
| Arabic | + | + | + | + | + | + | + | + | + | + |

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| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| (string) | | | | | | | | | | |
| DateToStr | + | + | + | + | + | + | + | + | + | + |
| Insert | + | + | + | + | + | + | + | + | + | + |
| Length | + | + | + | + | + | + | + | + | + | + |
| Persian(int) | + | + | + | + | + | + | + | + | + | + |
| Persian (string) | + | + | + | + | + | + | + | + | + | + |
| Remove | + | + | + | + | + | + | + | + | + | + |
| Replace | + | + | + | + | + | + | + | + | + | + |
| Roman | + | + | + | + | + | + | + | + | + | + |
| Substring | + | + | + | + | + | + | + | + | + | + |
| ToCurrencyWords | | | | | | | | | | |
| English | + | + | + | + | + | + | + | + | + | + |
| Russian | + | + | + | + | + | + | + | + | + | + |
| Ukranian | + | + | + | + | + | + | + | + | + | + |
| Spanish | + | + | + | + | + | + | + | + | + | + |
| French | + | + | + | + | + | + | + | + | + | + |

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| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Dutch | + | + | + | + | + | + | + | + | + | + |
| Polish | + | + | + | + | + | + | + | + | + | + |
| Thai | + | + | + | + | + | + | + | + | + | + |
| ToLowerCase | + | + | + | + | + | + | + | + | + | + |
| ToProperCase | + | + | + | + | + | + | + | + | + | + |
| ToUpperCase | + | + | + | + | + | + | + | + | + | + |
| ToWords | | | | | | | | | | |
| English | + | + | + | + | + | + | + | + | + | + |
| Russian | + | + | + | + | + | + | + | + | + | + |
| Ukranian | + | + | + | + | + | + | + | + | + | + |
| Spanish | + | + | + | + | + | + | + | + | + | + |
| Arabic | + | + | + | + | + | + | + | + | + | + |
| Polish | + | + | + | + | + | + | + | + | + | + |
| Trim | + | + | + | + | + | + | + | + | + | + |
| TryParseIDecimal | + | + | + | + | + | + | + | + | + | + |
| TryParseIDouble | + | + | + | + | + | + | + | + | + | + |

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| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| TryParseILong | + | + | + | + | + | + | + | + | + | + |
| Totals | | | | | | | | | | |
| Avg | + | + | + | + | + | + | + | + | + | + |
| Count | + | + | + | + | + | + | + | + | + | + |
| First | + | + | + | + | + | + | + | + | + | + |
| Last | + | + | + | + | + | + | + | + | + | + |
| Max | + | + | + | + | + | + | + | + | + | + |
| Median | + | + | + | + | + | + | + | + | + | + |
| Min | + | + | + | + | + | + | + | + | + | + |
| Mode | + | + | + | + | + | + | + | + | + | + |
| Sum | + | + | + | + | + | + | + | + | + | + |

### 2.1.7 System Variables

Variables are used for placing and using values in the report. The table below shows those system variables.

| System Variables | WinForms | WPF | Silverlight | ASP.NET Silverlight | ASP.NET Flash | MVC Flash | MVC HTML5 | Standalone Reports Designer | WinRT | ASP.NET HTML5 |
|---|---|---|---|---|---|---|---|---|---|---|
| Column | + | + | + | + | + | + | | + | + | |
| Line | + | + | + | + | + | + | | + | + | |
| LineThrough | + | + | + | + | + | + | | + | + | |
| LineABC | + | + | + | + | + | + | | + | + | |
| LineRoman | + | + | + | + | + | + | | + | + | |
| GroupLine | + | + | + | + | + | + | | + | + | |

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| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| PageNumber | + | + | + | + | + | + | | + | + | |
| PageNumberThrough | + | + | + | + | + | + | | + | + | |
| PageNofM | + | + | + | + | + | + | | + | + | |
| PageNofMThrough | + | + | + | + | + | + | | + | + | |
| TotalPageCount | + | + | + | + | + | + | | + | + | |
| TotalPageCountThrough | + | + | + | + | + | + | | + | + | |
| IsFirstPage | + | + | + | + | + | + | | + | + | |
| IsFirstPageThrough | + | + | + | + | + | + | | + | + | |
| IsLastPageThrough | + | + | + | + | + | + | | + | + | |
| IsLastPageThrough | + | + | + | + | + | + | | + | + | |
| Report Alias | + | + | + | + | + | + | | + | + | |
| Report Author | + | + | + | + | + | + | | + | + | |
| Report Changed | + | + | + | + | + | + | | + | + | |
| Report Created | + | + | + | + | + | + | | + | + | |
| Report Descrip | + | + | + | + | + | + | | + | + | |

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| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| tion | | | | | | | | | | |
| Report Name | + | + | + | + | + | + | | + | + | |
| Time | + | + | + | + | + | + | | + | + | |
| Today | + | + | + | + | + | + | | + | + | |

# 2.2 Viewers

## 2.2.1 Exports

Stimulsoft Reports supports more than 20 formats. Here is the list of them.

| Exports | WinForms | WPF | Silverlight | ASP.NET DHTML | ASP.NET Flash | ASP.NET Silverlight | MVC DHTML | MVC Flash | WinRT | ASP.NET HTML5 | MVC HTML5 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Documents** | | | | | | | | | | | |
| MRT | + | + | + | + | + | + | + | + | + | + | + |
| MDC | + | + | + | + | + | + | + | + | + | + | + |
| MDZ | + | + | | + | + | | + | + | | | |
| MDX | + | + | | + | + | | + | + | | | |
| MRX | + | + | | + | + | | + | + | | | |
| MRZ | + | + | | + | + | | + | + | | | |
| **Formats with fixed page layout** | | | | | | | | | | | |
| PDF | + | + | + | + | + | + | + | + | + | + | + |
| Exporting Images | + | + | + | + | + | + | + | + | | + | + |
| Embedded fonts | + | + | + | + | + | + | + | + | | + | + |
| Digital signature | + | + | + | + | + | + | + | + | | + | + |
| Encryption | + | + | + | + | + | + | + | + | | + | + |
| Microsoft XPS | + | + | + | + | + | + | + | + | | + | + |
| Exporting Images | + | + | + | + | + | + | + | + | | + | + |

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| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Microsoft Power Point | + | + | + | + | + | + | + | + | + | + | + |
| **Web documents** | | | | | | | | | | | |
| HTML | + | + | + | + | + | + | + | + | + | + | + |
| HTML5 | + | + | + | + | + | + | + | + | | | + |
| MHT | + | + | + | + | + | + | + | + | | + | + |
| Text Formats | | | | | | | | | | | |
| Text | + | + | + | + | + | + | + | + | + | + | + |
| RTF | + | + | | + | + | + | + | + | | + | + |
| Microsoft Word 2007/2010 | + | + | + | + | + | + | + | + | + | + | + |
| OpenDocument Text | + | + | | + | + | + | + | + | | + | + |
| **Spreadsheets** | | | | | | | | | | | |
| Microsoft Excel | + | + | + | + | + | + | + | + | + | + | + |
| Microsoft Excel XML | + | + | + | + | + | + | + | + | + | + | + |
| Microsoft Excel 2007/2010 | + | + | + | + | + | + | + | + | + | + | + |
| OpenDocument Calc | + | + | | + | + | + | + | + | | + | + |
| **Data** | | | | | | | | | | | |
| CSV | + | + | + | + | + | + | + | + | + | + | + |
| dBase DBF | + | + | + | + | + | + | + | + | + | + | + |
| XML | + | + | | + | + | + | + | + | | + | + |
| DIF | + | + | | + | + | + | + | + | | + | + |
| SYLK | + | + | + | + | + | + | + | + | | + | + |
| **Images** | | | | | | | | | | | |
| BMP | + | + | + | + | + | + | + | + | | + | + |
| GIF | + | + | | + | + | + | + | + | | + | + |
| JPEG | + | + | + | + | + | + | + | + | | + | + |

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| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| PCX | + | + | | + | + | + | + | + | | + | + |
| PNG | + | + | + | + | + | + | + | + | | + | + |
| TIFF | + | + | | + | + | + | + | + | | + | + |
| **Vector images** | | | | | | | | | | | |
| Windows Metafile | + | + | | + | + | + | + | + | | + | + |
| SVG | + | + | + | + | + | + | + | + | | + | + |
| Compressed SVG | + | + | | + | + | + | + | + | | + | + |

### 2.2.2 Features

The table below identifies which viewers are supported in Stimulsoft Reports products.

| Viewer Features | WinForms | WPF | Silverlight | ASP.NET DHTML | ASP.NET Flash | ASP.NET Silverlight | MVC DHTML | MVC Flash | WinRT | ASP.NET HTML5 | MVC HTML5 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Add new page | + | + | | | | + | | | + | | |
| Automatic page scrolling / resizing | + | + | + | + | + | + | + | + | + | | |
| Create reports dynamically | + | + | + | + | + | + | + | + | + | | |
| Bookmarks | + | + | + | + | + | + | + | + | + | | |
| Drill-Down | + | + | + | | + | + | | + | + | | |
| Navigation bar | + | + | + | + | + | + | + | + | + | + | + |
| Page | + | + | + | + | + | + | + | + | + | + | + |

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| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| navigation | | | | | | | | | | | |
| Page View Modes | | | | | | | | | | | |
| Single Page | + | + | + | + | + | + | + | + | + | + | + |
| Continuous | + | + | + | + | + | + | + | + | + | | |
| Multiple Pages | + | + | + | + | + | + | + | + | + | + | + |
| Full Screen | + | + | + | + | + | + | + | + | + | | |
| Page Width | + | + | + | + | + | + | + | + | + | | |
| Print/ Preview | + | + | + | + | + | + | + | + | + | + | + |
| Edit Report Page | + | + | + | | | + | | | + | | |
| Send Email | + | + | | | + | | | + | + | | |
| Report viewer customization | + | + | + | + | + | + | + | + | + | + | + |
| Report caching | + | | + | | | | | | + | | |
| Search Panel | + | + | + | | + | + | | + | + | | |
| Thumbnails panel | + | + | + | | + | + | | + | + | | |
| ToolTips | + | + | + | + | + | + | + | + | + | | |
| Web report | + | | + | + | + | + | + | + | + | + | + |

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| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| caching | | | | | | | | | | | |
| Zooming | + | + | + | + | + | + | + | + | + | + | + |

## 2.3 Products

### 2.3.1 Importing Utilities

Importing Utilities are used to convert third party reports into native Stimulsoft Reports format.

| Importing Utility | Reports. Ultimate | Reports. Net | Reports. Web | Reports. Wpf | Reports. Silverlight | Reports. WinRT |
|---|---|---|---|---|---|---|
| Import. Crystal Reports | + | + | + | + | + | + |
| Import.RTF | + | + | + | + | + | + |
| Import. ActiveReports | + | + | + | + | + | + |
| Import. XtraReports | + | + | + | + | + | + |
| Import. FastReport | + | + | + | + | + | + |
| Import.RDL | + | + | + | + | + | + |
| Import. ReportSharp Shooter | + | + | + | + | + | + |

### 2.3.2 Database Packs

The table shows the list of supported database adaptors. They are available for downloading here in the section Database packs (for Stimulsoft Reports product line only).

| Database Packs | Reports. Ultimate | Reports. Net | Reports. Web | Reports. Wpf | Reports. Silverlight | Reports. WinRT |
|---|---|---|---|---|---|---|
| dot Connect | + | + | + | + | + | + |

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| | | | | | | |
|---|---|---|---|---|---|---|
| Universal | | | | | | |
| XML | + | + | + | + | + | + |
| MS SQL | + | + | + | + | + | + |
| ODBC | + | + | + | + | + | + |
| OLEDB | + | + | + | + | + | |
| Business Objects | + | + | + | + | + | |
| EffiProz | + | + | + | + | + | |
| Firebird | + | + | + | + | + | |
| IBM Db2 | + | + | + | + | + | |
| MS Access | + | + | + | + | + | |
| MySQL ConnectorNet | + | + | + | + | + | |
| MySQL CoreLab | + | + | + | + | + | |
| Oracle | + | + | + | + | + | |
| Oracle Data Provider for .NET | + | + | + | + | + | |
| PostgreSQL | + | + | + | + | + | |
| PostgreSQL CoreLab | + | + | + | + | + | |
| SqlCe | + | + | + | + | + | |
| SQLite | + | + | + | + | + | |
| VistaDB | + | + | + | + | + | |
| Uni Direct | + | + | + | + | + | |
| Sybase Advantage Database Server | + | + | + | + | + | |
| Sybase Adaptive Server Enterprise | + | + | + | + | + | |
| Informix | + | + | + | + | + | |

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### 2.3.3 Localizations

The list of UI localizations is shown below.

| Localizations | Reports. Ultimate | Reports. Net | Reports. Web | Reports. Wpf | Reports. Silverlight | Reports. WinRT |
|---|---|---|---|---|---|---|
| Arabic | + | + | + | + | + | + |
| Belarussian | + | + | + | + | + | + |
| Bulgarian | + | + | + | + | + | + |
| Chinese (Simplified) | + | + | + | + | + | + |
| Chinese (Traditional) | + | + | + | + | + | + |
| Croatian | + | + | + | + | + | + |
| Czech | + | + | + | + | + | + |
| Dutch | + | + | + | + | + | + |
| English | + | + | + | + | + | + |
| Farsi | + | + | + | + | + | + |
| French | + | + | + | + | + | + |
| Georgian | + | + | + | + | + | + |
| German | + | + | + | + | + | + |
| Hungarian | + | + | + | + | + | + |
| Italian | + | + | + | + | + | + |
| Lithuanian | + | + | + | + | + | + |
| Polish | + | + | + | + | + | + |
| Portuguese (Brazil) | + | + | + | + | + | + |
| Romanian | + | + | + | + | + | + |
| Russian | + | + | + | + | + | + |
| Serbian | + | + | + | + | + | + |
| Slovak | + | + | + | + | + | + |

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| | | | | | | |
|---|---|---|---|---|---|---|
| Spanish | + | + | + | + | + | + |
| Swedish | + | + | + | + | + | + |
| Turkish | + | + | + | + | + | + |
| Ukrainian | + | + | + | + | + | + |

### 2.3.4 User Interface

The table shows which user interface and their themes are supported.

| User Interface | Reports. Ultimate | Reports. Net | Reports. Web | Reports. Wpf | Reports. Silverlight | Reports. WinRT |
|---|---|---|---|---|---|---|
| Office 2000 | + | + | + | + | | |
| Office XP | + | + | + | + | | |
| Standard (Microsoft Office 2003) | | | | | | |
| Blue | + | + | + | + | | |
| Silver | + | + | + | + | | |
| Black | + | + | + | + | | |
| Ribbon (Microsoft Office 2007) | | | | | | |
| Blue | + | + | + | + | + | |
| Silver | + | + | | + | + | |
| Black | + | + | | + | | |
| Ribbon (Microsoft Office 2010) | | | | | | |
| Blue | + | + | + | + | + | |
| Silver | + | + | | + | + | |
| Black | + | + | | + | + | |
| Ribbon (Microsoft Office 2013) | | | | | | |
| White | + | + | + | + | + | + |
| LightGray | | | | | + | |
| DarkGray | | | | | + | |
| Black | | | | + | | |
| Windows 7 | + | + | + | + | | |

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| | | | | | | |
|---|---|---|---|---|---|---|
| Vista | + | + | | | | |
| MacOS | | | | | + | |

## 2.3.5 Reporting Features

Stimulsoft Reports supports great many features. Here is the list of them.

| Reporting Features | Reports. Ultimate | Reports. Net | Reports. Web | Reports. Wpf | Reports. Silverlight | Reports. WinRT |
|---|---|---|---|---|---|---|
| Alpha blending | + | + | + | + | + | |
| Data aggregation | + | + | + | + | + | |
| Data filtering | + | + | + | + | + | + |
| Data grouping | + | + | + | + | + | + |
| ToolTips | + | + | + | + | + | + |
| Data sorting | + | + | + | + | + | + |
| Dynamic sorting | + | + | + | + | + | |
| Different page sizes | + | + | + | + | + | + |
| Drag & Drop | + | + | + | + | + | + |
| Query Builder | + | + | | + | | |
| Expressions | | | | | | |
| Text Expressions | + | + | + | + | + | + |
| Calculating Values In Expressions | + | + | + | + | + | + |
| Multi-line Expressions | + | + | + | + | + | + |
| Condition | + | + | + | + | + | + |

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| | | | | | | |
|---|---|---|---|---|---|---|
| al Expressions | | | | | | |
| Aliases In Expressions | + | + | + | + | + | + |
| Appearance | | | | | | |
| Borders | + | + | + | + | + | + |
| Horizontal Alignment | + | + | + | + | + | + |
| Vertical Alignment | + | + | + | + | + | + |
| Styles | + | + | + | + | + | + |
| Alternate Row Styles | + | + | + | + | + | + |
| Conditional formatting | | | | | | |
| Value Condition | + | + | + | + | + | + |
| Operators | + | + | + | + | + | + |
| Expression Condition | + | + | + | + | + | + |
| Multi Part Conditions | + | + | + | + | + | + |
| Data Bar Condition | + | + | | + | + | |
| Color Scale Condition | + | + | | + | + | |
| Icon Set Condition | + | + | | + | + | |
| Output text parameters | | | | | | |
| Multiline text | + | + | + | + | + | + |
| Trimming in the end of text line | + | + | + | + | + | + |
| Prevent showing incompletely visible lines | + | + | + | + | + | + |

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| | | | | | | |
|---|---|---|---|---|---|---|
| Lines of underlining | + | + | + | + | + | + |
| Text rotation | + | + | + | + | + | + |
| Processing Duplicates | + | + | + | + | + | + |
| Text formatting | | | | | | |
| Standard | + | + | + | + | + | + |
| Numerical | + | + | + | + | + | + |
| Currency | + | + | + | + | + | + |
| Date | + | + | + | + | + | + |
| Time | + | + | + | + | + | + |
| Percentage | + | + | + | + | + | + |
| Boolean | + | + | + | + | + | + |
| Custom | + | + | + | + | + | + |
| Formatting in text | + | + | + | + | + | + |
| HTML tags | | | | | | |
| <font> | + | + | + | + | | + |
| <b> | + | + | + | + | | + |
| <br> | + | + | + | + | | + |
| <i> | + | + | + | + | | + |
|  | + | + | + | + | | + |
| <u> | + | + | + | + | | + |
| <s> | + | + | + | + | | + |
| <sup> | + | + | + | + | | + |
| <sub> | + | + | + | + | | + |
|  | + | + | + | + | | + |
| <p> | + | + | + | + | | + |
| <ol> | + | + | + | + | | + |
| <ul> | + | + | + | + | | + |
| <background- | + | + | + | + | | + |

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| | | | | | | |
|---|---|---|---|---|---|---|
| color> | | | | | | |
| <text-align> | + | + | + | + | | + |
| <letter-spacing> | + | + | + | + | | + |
| <word-spacing> | + | + | + | + | | + |
| <line-height> | + | + | + | + | | + |
| Special Symbols | + | + | + | + | | + |
| Rich Text | + | + | + | + | | + |
| Images | | | | | | |
| Loading image from file | + | + | + | + | + | + |
| Loading image from report code | + | + | + | + | + | + |
| Loading image from data field | + | + | + | + | + | + |
| Autosize | | | | | | |
| Can Grow | + | + | + | + | + | + |
| Can Shrink | + | + | + | + | + | + |
| Automatically resizing text | + | + | + | + | + | + |
| Automatically resizing panels | + | + | + | + | + | + |
| Automatically Resizing Bands | + | + | + | + | + | + |
| Primitives | | | | | | |
| Arrow | + | + | + | + | + | + |
| Diagonal Line Down | + | + | + | + | + | + |

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| | | | | | | |
|---|---|---|---|---|---|---|
| Diagonal Line Up | + | + | + | + | + | + |
| Horizontal Line | + | + | + | + | + | + |
| Left and Right Line | + | + | + | + | + | + |
| Oval | + | + | + | + | + | + |
| Rounded Rectangle | + | + | + | + | + | + |
| Top and Bottom Line | + | + | + | + | + | + |
| Triangle | + | + | + | + | + | + |
| Vertical Line | + | + | + | + | + | + |
| Complex Arrow | + | + | + | + | + | + |
| Bent Arrow | + | + | + | + | + | + |
| Chevron | + | + | + | + | + | + |
| Division | + | + | + | + | + | + |
| Equal | + | + | + | + | + | + |
| Flowchart: Card | + | + | + | + | + | + |
| Flowchart: Collate | + | + | + | + | + | + |
| Flowchart: Decision | + | + | + | + | + | + |
| Flowchart: Manual Input | + | + | + | + | + | + |
| Flowchart: Off Page Connector | + | + | + | + | + | + |
| Flowchart: Preparation | + | + | + | + | + | + |
| Flowchart: Sort | + | + | + | + | + | + |
| Frame | + | + | + | + | + | + |
| Minus | + | + | + | + | + | + |
| Multiply | + | + | + | + | + | + |

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| | | | | | | |
|---|---|---|---|---|---|---|
| Parallelogram | + | + | + | + | + | + |
| Plus | + | + | + | + | + | + |
| Regular: Pentagon | + | + | + | + | + | + |
| Trapezoid | + | + | + | + | + | + |
| Snip Same Side Corner Rectangle | + | + | + | + | + | + |
| Snip Diagonal Side Corner Rectangle | + | + | + | + | + | + |
| Scripts | + | + | + | + | + | + |
| Watermark | | | | | | |
| Text | + | + | + | + | + | + |
| Image | + | + | + | + | + | + |
| Pagination | + | + | + | + | + | + |
| Report Globalization | + | + | + | + | + | + |
| Save to Google Docs | + | + | + | + | + | + |
| Navigation bar | + | + | + | + | + | + |
| Formatted text | + | + | + | + | + | + |
| Gradient fills | + | + | + | + | + | + |
| Hierarchical reports | + | + | + | + | + | + |
| Hyperlink embedding | + | + | + | + | + | + |
| Multiple reporting bands on a page | + | + | + | + | + | + |
| Page overlays | + | + | + | + | + | + |
| Parameterize | + | + | + | + | + | + |

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| | | | | | | |
|---|---|---|---|---|---|---|
| d Reports | | | | | | |
| Pivot tables | + | + | + | + | + | + |
| Segmented pages | + | + | + | + | + | + |
| Report style sheet | + | + | + | + | + | + |
| Page manager | + | + | | + | | + |
| Right-To-Left | | | | | | |
| Text component | + | + | + | + | + | + |
| Text In Cells component | + | + | + | + | + | + |
| Cross Table component | + | + | + | + | + | + |
| Columns on page | + | + | + | + | + | + |
| Chart Component | + | + | + | + | + | + |
| Columns in Data Band | + | + | + | + | + | + |
| WinForms report viewer | + | + | + | + | + | + |
| Unicode, internationalization support | + | + | + | + | + | + |

## 2.3.6 Tools

Tools are used to improve and make faster work with the reporting tool. See the list of them.

| Tools | Reports. Ultimate | Reports. Net | Reports. Web | Reports. Wpf | Reports. Silverlight | Reports. WinRT |
|---|---|---|---|---|---|---|
| Configurator | + | + | | | | |

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| | | | | | | |
|---|---|---|---|---|---|---|
| Installer | + | + | + | + | + | + |
| Designer | + | + | + | + | + | + |
| Viewer | + | + | + | + | + | + |
| Report Browser | + | + | + | + | | |
| Report Checker | + | + | + | + | | |
| Style Designer | + | + | + | + | | |
| Report Comparer | + | + | + | | | |

## 2.3.7 Product Comparison

Please see the table below to find which components are Stimulsoft Reports.

| Product Comparison | Reports. Ultimate | Reports. Net | Reports. Web | Reports. Wpf | Reports. Silverlight | Reports. WinRT |
|---|---|---|---|---|---|---|
| **Report Viewers** | | | | | | |
| WinForms | + | + | | | | |
| WPF | + | | | + | | |
| Silverlight | + | | | | + | |
| WinRT | + | | | | | + |
| ASP.NET HTML5 | + | | + | | | |
| ASP.NET DHTML | + | + | + | | | |
| ASP.NET Flash | + | | + | | | |
| ASP.NET Silverlight | + | | | | + | |
| MVC HTML5 | + | | + | | | |
| MVC DHTML | + | | + | | | |
| MVC Flash | + | | + | | | |

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| | | | | | | |
|---|---|---|---|---|---|---|
| Dot-Matrix | + | + | | + | | |
| **Report Designers** | | | | | | |
| WinForms | + | + | | | | |
| WPF | + | | | + | | |
| Silverlight | + | | | | + | |
| WinRT | + | | | | | + |
| ASP.NET HTML5 | + | | + | | | |
| ASP.NET Flash | + | | + | | | |
| ASP.NET Silverlight | + | | | | + | |
| MVC HTML5 | + | | + | | | |
| MVC Flash | + | | + | | | |
| Standalone Reports Designer | + | + | + | + | + | |
| **Engines** | | | | | | |
| .NET Report Engine | + | + | + | + | + | |
| Silverlight Report Engine | + | | | | + | |
| WinRT Report Engine | + | | + | | | + |

## 2.3.8 System Requirements

The table helps you to check which system parameters are necessary for using Stimulsoft Reports.

| System Requirements | Reports. Ultimate | Reports. Net | Reports. Web | Reports. Wpf | Reports. Silverlight | Reports. WinRT |
|---|---|---|---|---|---|---|
| .NET Framework | + | | | | | |

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| | | | | | | |
|---|---|---|---|---|---|---|
| 1.1 (версия 2008.1) | | | | | | |
| .NET Framework 2.0 | + | | + | | | |
| .NET Framework 3.0 | + | | + | | | |
| .NET Framework 3.5 | + | | + | + | | |
| .NET Framework 4.0 | + | | + | + | + | |
| .NET Framework 4.5 | + | | + | + | + | |
| Microsoft Visual Studio 2005 | + | | + | | | |
| Microsoft Visual Studio 2008 | + | | + | + | | |
| Microsoft Visual Studio 2010 | + | | + | + | + | |
| Microsoft Visual Studio 2012 | + | + | + | + | + | + |
| Microsoft Visual Studio 2013 | + | | | | | + |
| Microsoft Expression Blend | + | | | | + | |
| Flash Builder 4 | + | | | | | |
| Adobe Flash Player 10 and higher | + | | + | | | |
| Product Architecture: | | | | | | |

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| | | | | | | |
|---|---|---|---|---|---|---|
| x86 | + | + | + | + | + | + |
| x64 | + | + | + | + | + | + |
| ARM | + | | | | | + |
| Component Type: | | | | | | |
| .NET WinForms | + | | + | + | + | |
| ASP.NET | + | | + | + | + | |
| ASP.NET MVC | + | | + | | | |
| WPF | + | | + | + | + | |
| Silverlight | + | | | | + | |
| PHP | | | | | | |
| Flex | | | | | | |
| RT | + | + | | | | + |
| Java 1.5+ | | | | | | |
| WCF | + | | + | | + | |
| Supported OS: | | | | | | |
| Windows 98 | + | | + | + | + | |
| Windows ME | + | | + | + | + | |
| Windows 2000 | + | | + | + | + | |
| Windows Server 2003 | + | | + | + | + | |
| Windows XP | + | | + | + | + | |
| Windows Vista | + | | + | + | + | |
| Windows 7 | + | | + | + | + | |
| Windows 8 | | + | + | | | + |
| Windows 8 ARM | | + | | | | + |
| Linux | | | | | | |
| Mac OS X | + | | + | | | |

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### 2.3.9 Reports

The list of common reports you can create with the reporting tools. No doubts you may create a report of any complexity according to your needs.

| Reports | Reports. Ultimate | Reports. Net | Reports. Web | Reports. Wpf | Reports. Silverlight | Reports. WinRT |
|---|---|---|---|---|---|---|
| Basic reports | + | + | + | + | + | + |
| Reports with Columns | + | + | + | + | + | + |
| Master-Detail Reports | + | + | + | + | + | + |
| Reports with Groups | + | + | + | + | + | + |
| Hierarchical Reports | + | + | + | + | + | + |
| Report with Business Object | + | + | + | + | + | + |
| Interactive Reports | + | + | + | + | + | + |
| Invoice | + | + | + | + | + | + |
| Tables | + | + | | + | + | + |
| Report with Chart | + | + | + | + | + | + |
| Cross-Tab Reports | + | + | + | + | + | + |
| Reports with Empty Bands | + | + | + | + | + | + |
| Reports with Containers | + | + | + | + | + | + |
| Sub-reports | + | + | + | + | + | + |
| Reports with Dialogs | + | + | + | + | + | + |

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| | | | | | | |
|---|---|---|---|---|---|---|
| Reports with Pages Segments | + | + | | + | + | + |

# 3 Features - Stimulsoft ReportsFx Product Line

This section describes the basic features of **Stimulsoft Reports.Fx** product line. The product line includes the following products:
Stimulsoft Reports.Fx for Flex
Stimulsoft Reports.Fx for PHP
Stimulsoft Reports.Fx for Java

This section is divided into topics which shows the basic options along every category of features. The lists of features are rough, not complete, and constantly updated, so, concerning the availability of these or that features, please contact technical support managers.

## 3.1 Designers

### 3.1.1 Barcode

The table represents the list of supported bar-codes.

| Barcode | Flash for Flex | Flash for PHP | Flash for Java | Standalone AIR |
|---|---|---|---|---|
| **Linear Barcodes** | | | | |
| **EAN/UPC based** | | | | |
| EAN-128a | + | + | + | + |
| EAN-128b | + | + | + | + |
| EAN-128c | + | + | + | + |
| EAN-128 Auto | + | + | + | + |
| EAN-13 | + | + | + | + |
| EAN-8 | + | + | + | + |
| ISBN-10 | + | + | + | + |
| ISBN-13 | + | + | + | + |
| ITF-14 | + | + | + | + |

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| | | | | |
|---|---|---|---|---|
| JAN-13 | + | + | + | + |
| JAN-8 | + | + | + | + |
| UPC-A | + | + | + | + |
| UPC-E | + | + | + | + |
| UPC-Sup2 | + | + | + | + |
| UPC-Sup5 | + | + | + | + |
| **Other linear bar-codes** | | | | |
| Australia Post 4-state | + | + | + | + |
| Royal Mail 4-state | + | + | + | + |
| Code 11 | + | + | + | + |
| Code 128a | + | + | + | + |
| Code 128b | + | + | + | + |
| Code 128c | + | + | + | + |
| Code128 Auto | + | + | + | + |
| Code 39 | + | + | + | + |
| Code 39 Extended | + | + | + | + |
| Code 93 | + | + | + | + |
| Code 93 Extended | + | + | + | + |
| Codabar | + | + | + | + |
| Royal TPG Post KIX 4-State | + | + | + | + |
| FIM | + | + | + | + |
| 2 of 5 Interleaved | + | + | + | + |
| Msi | + | + | + | + |
| Pharmacode | + | + | + | + |
| Plessey | + | + | + | + |
| Postnet | + | + | + | + |
| 2 of 5 Standard | + | + | + | + |
| **2D Barcodes** | | | | |
| DataMatrix | + | + | + | + |
| PDF417 | + | + | + | + |

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| | | | | |
|---|---|---|---|---|
| QR Code | + | + | + | + |

### 3.1.2 Charts

The table below shows the chart types supported in the reporting tool.

| Charts | | | Flash for Flex | Flash for PHP | Flash for Java | Standalone AIR |
|---|---|---|---|---|---|---|
| **Column Area** | | Clustered Column | + | + | + | + |
| | | Stacked Column | + | + | + | + |
| | | Full-Stacked Column | + | + | + | + |
| **Bar Area** | | Clustered Bar | + | + | + | + |
| | | Stacked Bar | + | + | + | + |
| | | Full-Stacked Bar | + | + | + | + |
| **Pie Area** | | Pie | + | + | + | + |
| | | Doughnut | + | + | + | + |
| **Line Area** | | Line | + | + | + | + |
| | | Stepped Line | + | + | + | + |
| | | Stacked Line | + | + | + | + |
| | | Full-Stacked Line | + | + | + | + |
| **Area** | | Area | + | + | + | + |
| | | Stepped Area | + | + | + | + |
| | | Stacked Area | + | + | + | + |

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| | | | | | | |
|---|---|---|---|---|---|---|
| | | Full-Stacked Area | + | + | + | + |
| **Gantt Area** | | Gantt | + | + | + | + |
| **Spline** | | Spline | + | + | + | + |
| | | Stacked Spline | + | + | + | + |
| | | Full-Stacked Spline | + | + | + | + |
| **Spline Area** | | Spline Area | + | + | + | + |
| | | Stacked Spline Area | + | + | + | + |
| | | Full-Stacked Spline Area | + | + | + | + |
| **Scatter Area** | | Scatter | + | + | + | + |
| | | Scatter Line | + | + | + | + |
| | | Scatter Spline | + | + | + | + |
| **Bubble** | | Bubble | + | + | + | + |
| **Radar** | | Radar Point | + | + | + | + |
| | | Radar Line | + | + | + | + |
| | | Radar Area | + | + | + | + |
| **Range** | | Range | + | + | + | + |
| | | Stepped Range | + | + | + | + |
| | | Spline Range | + | + | + | + |
| | | Range Bar | + | + | + | + |
| **Funnel** | | Funnel | + | + | + | + |

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| | | | | | | |
|---|---|---|---|---|---|---|
| | | Funnel Weighted Slices | + | + | + | + |
| **Financial** | | Candlestick | + | + | + | + |
| | | Stock | + | + | + | + |

### 3.1.3 Components

Components in Stimulsoft Reports.Fx are divided into 3 groups. See the table below with the components supported.

| Components | Flash for Flex | Flash for PHP | Flash for Java | Standalone AIR |
|---|---|---|---|---|
| **Bands** | | | | |
| Report Title | + | + | + | + |
| Report Summary | + | + | + | + |
| Page Header | + | + | + | + |
| Page Footer | + | + | + | + |
| Group Header | + | + | + | + |
| Group Footer | + | + | + | + |
| Header | + | + | + | + |
| Footer | + | + | + | + |
| Column Header | + | + | + | + |
| Column Footer | + | + | + | + |
| Data | + | + | + | + |
| Hierarchical Data | | | | |
| Child | | | | |
| Empty Data | + | + | + | + |
| Overlay | | | | |
| **Cross Bands** | | | | |
| Cross-Tab | + | + | + | + |
| Cross-Group Header | | | | |
| Cross-Group Footer | | | | |

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| | | | | |
|---|---|---|---|---|
| Cross-Header | + | + | + | + |
| Cross-Footer | + | + | + | + |
| Cross-Data | + | + | + | + |
| **Components** | | | | |
| Bar-Code | + | + | + | + |
| Chart | + | + | + | + |
| Check Box | + | + | + | + |
| Clone | + | + | + | + |
| Horizontal Line | + | + | + | + |
| Image | + | + | + | + |
| Panel | + | + | + | + |
| Rectangle | + | + | + | + |
| Rich Text | | | | |
| Rounded Rectangle | + | + | + | + |
| Shape | + | + | + | + |
| Sub-Report | + | + | + | + |
| Table | | | | |
| Text | + | + | + | + |
| Text in Cells | | | | |
| Vertical Line | + | + | + | + |
| Watermark | + | + | + | + |
| Zip Code | + | + | + | + |

### 3.1.4 Report Wizards

Very important part of the reporting tool is a report wizard. They are used to accelerate report creation. The list below shows which report wizards are supported.

| Report Wizards | Flash for Flex | Flash for PHP | Flash for Java | Standalone AIR |
|---|---|---|---|---|
| Standard Report | + | + | + | + |
| Master-Detail Report | + | + | + | + |
| Label Report | + | + | + | + |

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| | | | | |
|---|---|---|---|---|
| Chart | | | | |
| Cross-Tab | + | + | + | + |

### 3.1.5 Functions

Here is the list functions supported in Stimulsoft Reports.Fx.

| Functions | Flash for Flex | Flashfor PHP | Reports Designer (Flash) for Java | Standalone AIR |
|---|---|---|---|---|
| Date | | | | |
| DateDiff | | | | |
| DateSerial | + | + | + | + |
| Day | + | + | + | + |
| DayOfWeek | | | | |
| DayOfYear | | | | |
| Hour | + | | + | + |
| Minute | + | + | + | + |
| Month | + | + | + | + |
| Second | + | + | + | + |
| TimeSerial | + | + | + | + |
| Year | + | + | + | + |
| Math | | | | |
| Abs | + | + | + | + |
| Asin | + | + | + | + |
| Atan | + | + | + | + |
| Ceiling | + | + | + | + |
| Cos | + | + | + | + |
| Div | + | + | + | + |
| Exp | + | + | + | + |
| Floor | + | + | + | + |
| Log | + | + | + | + |

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| | | | | |
|---|---|---|---|---|
| Maximum | + | + | + | + |
| Minimum | + | + | + | + |
| Round | + | + | + | + |
| Sign | + | + | + | + |
| Sin | + | + | + | + |
| Sqrt | + | + | + | + |
| Tan | + | + | + | + |
| Truncate | + | + | + | + |
| Print State | | | | |
| IsNull | | | | |
| Next | | | | |
| NextIsNull | | | | |
| Previous | | | | |
| PreviousIsNull | | | | |
| Programming Shortcut | | | | |
| Choose | + | + | + | + |
| IIF | + | + | + | + |
| Switch | + | + | + | + |
| Strings | | | | |
| Arabic(int) | | | | |
| Arabic(string) | | | | |
| DateToStr | | | | |
| Insert | + | + | + | + |
| Length | + | + | + | + |
| Persian(string) | | | | |
| Persian(string) | | | | |
| Remove | + | + | + | + |
| Replace | + | + | + | + |
| Roman | | | | |
| Substring | + | + | + | + |

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| | | | | |
|---|---|---|---|---|
| ToCurrencyWords | | | | |
| ToLowerCase | + | + | + | + |
| ToProperCase | | | | |
| ToUpperCase | + | + | + | + |
| ToWords | | | | |
| Trim | + | + | + | + |
| TryParseIDecimal | | | | |
| TryParseIDouble | | | | |
| TryParseILong | | | | |
| Totals | | | | |
| Avg | + | + | + | + |
| Count | + | + | + | + |
| First | + | + | + | + |
| Last | + | + | + | + |
| Max | + | + | + | + |
| Median | + | + | + | + |
| Min | + | + | + | + |
| Mode | + | + | + | + |
| Sum | + | + | + | + |

### 3.1.6 System Variables

Variables are used for placing and using values in the report. The table below shows those system variables.

| System Variables | Flash for Flex | Flash for PHP | Flash for Java | Standalone AIR |
|---|---|---|---|---|
| Column | + | + | + | + |
| Line | + | + | + | + |
| LineThrough | + | + | + | + |
| LineABC | + | + | + | + |
| LineRoman | + | + | + | + |

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| | | | | |
|---|---|---|---|---|
| GroupLine | + | + | + | + |
| PageNumber | + | + | + | + |
| Page NumberThrough | + | + | + | + |
| PageNofM | + | + | + | + |
| PageNofMThrough | + | + | + | + |
| TotalPageCount | + | + | + | + |
| TotalPageCountThrough | + | + | + | + |
| IsFirstPage | + | + | + | + |
| IsFirstPageThrough | + | + | + | + |
| IsLastPageThrough | + | + | + | + |
| IsLastPageThrough | + | + | + | + |
| ReportAlias | + | + | + | + |
| ReportAuthor | + | + | + | + |
| ReportChanged | + | + | + | + |
| ReportCreated | + | + | + | + |
| ReportDescription | + | + | + | + |
| ReportName | + | + | + | + |
| Time | + | + | + | + |
| Today | + | + | + | + |

# 3.2 Viewers

## 3.2.1 Exports

Here is the list of export formats Stimulsoft Reports.Fx supports.

| Exports | Flash for Flex | Flash for PHP | Flash for Java | Java | DHTML for Java |
|---|---|---|---|---|---|
| **Formats with fixed page layout** | | | | | |
| PDF | + | | + | + | + |
| Exporting | + | | + | + | + |

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| | | | | | |
|---|---|---|---|---|---|
| Images | | | | | |
| Embedded fonts | | | + | + | + |
| Digital signature | | | | | |
| Encryption | | | | | |
| Microsoft XPS | | | + | + | + |
| Exporting Images | | | | | |
| Microsoft Power Point | | | | | |
| **Web documents** | | | | | |
| HTML | | | + | + | + |
| MHT | | | | | |
| **Text formats** | | | | | |
| Text | + | | + | + | + |
| RTF | + | | + | + | + |
| Microsoft Word 2007/2010 | + | | + | + | + |
| OpenDocument Text | | | | | |
| **Spreadsheets** | | | | | |
| Microsoft Excel | + | | + | + | + |
| Microsoft Excel XML | | | + | + | + |
| Microsoft Excel 2007/2010 | | | + | + | + |
| OpenDocument Calc | | | | | |
| **Data** | | | | | |
| CSV | + | | + | + | + |
| dBase DBF | | | | | |
| XML | | | + | + | + |
| DIF | | | | | |

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| | | | | | |
|---|---|---|---|---|---|
| SYLK | | | + | + | + |
| **Images** | | | | | |
| BMP | | | + | + | + |
| GIF | | | | | |
| JPEG | | | + | + | + |
| PCX | | | + | + | + |
| PNG | | | + | + | + |
| TIFF | | | | | |
| **Vector images** | | | | | |
| Windows Metafile | | | | | |
| SVG | | | + | + | + |
| Compressed SVG | | | + | + | + |

### 3.2.2 Viewer Features

Viewers in Stimulsoft Reports.Fx are very powerful. Here is the list of features.

| Viewer Features | Flash for Flex | Flash for PHP | Flash for Java | Java | DHTML for Java |
|---|---|---|---|---|---|
| Add new page | | | | | |
| Automatic page scrolling / resizing | + | + | + | + | + |
| Create reports dynamically | | + | | | |
| Bookmarks | + | + | + | + | + |
| Drill-Down | | | | | |
| Navigation bar | + | + | + | + | + |
| Page navigation | + | + | + | + | + |
| Page View Modes | + | + | + | + | + |
| Single Page | + | + | + | + | + |

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| | | | | | |
|---|---|---|---|---|---|
| Continuous | + | + | + | + | + |
| Multiple Pages | + | + | + | + | + |
| Full Screen | | | | | |
| Page Width | | | | | |
| Print/Preview | + | + | + | + | + |
| Report paging | + | + | + | + | + |
| Send Email | | | | | |
| Report viewer customization | + | + | + | + | + |
| Report caching | | | | | |
| Search Panel | + | + | + | + | + |
| Thumbnails panel | + | + | + | + | + |
| ToolTips | + | + | + | + | + |
| Web report caching | | | | | |
| Zooming | + | + | + | + | + |

# 3.3 Products

## 3.3.1 Importing Utilities

Importing Utilities are used to convert third party reports into native Stimulsoft Reports.Fx format.

| Importing Utility | Stimulsoft Reports. Fx for Flex | Stimulsoft Reports.Fx for PHP | Stimulsoft Reports.Fx for Java |
|---|---|---|---|
| Import.CrystalReports | + | + | + |
| Import.RTF | + | + | + |
| Import.ActiveReports | + | + | + |
| Import.XtraReports | + | + | + |
| Import.FastReport | + | + | + |
| Import.RDL | + | + | + |

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| | | | |
|---|---|---|---|
| Import. ReportSharpShooter | + | + | + |

### 3.3.2 Database Packs

The table shows the list of supported database adaptors. They are embeded in the product.

| Database Packs | Stimulsoft Reports. Fx for Flex | Stimulsoft Reports.Fx for PHP | Stimulsoft Reports.Fx for Java |
|---|---|---|---|
| dot Connect Universal | | | |
| XML | + | + | + |
| MS SQL | | + | + |
| ODBC | | + | |
| ODBC | | | + |
| OLE DB | | | |
| Business Objects | | | |
| EffiProz | | | |
| Firebird | | + | |
| IBM Db2 | | | |
| MS Access | | | |
| MySQL ConnectorNet | + | + | + |
| MySQL CoreLab | + | + | + |
| Oracle | | + | + |
| Oracle Data Provider for . NET | | + | |
| PostgreSQL | | + | + |
| PostgreSQL CoreLab | | + | + |
| SqlCe | | | |
| SQLite | | | |
| VistaDB | | | |
| Uni Direct | | | |

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| | | | |
|---|---|---|---|
| Sybase Advantage Database Server | | | |
| Sybase Adaptive Server Enterprise | | | |
| Informix | | | |

### 3.3.3 Localizations

The list of UI localizations is shown below.

| Localizations | Stimulsoft Reports. Fx for Flex | Stimulsoft Reports.Fx for PHP | Stimulsoft Reports.Fx for Java |
|---|---|---|---|
| Arabic | + | + | + |
| Belarussian | + | + | + |
| Bulgarian | + | + | + |
| Chinese (Simplified) | + | + | + |
| Chinese (Traditional) | + | + | + |
| Croatian | + | + | + |
| Czech | + | + | + |
| Dutch | + | + | + |
| English | + | + | + |
| Farsi | + | + | + |
| French | + | + | + |
| Georgian | + | + | + |
| German | + | + | + |
| Hungarian | + | + | + |
| Italian | + | + | + |
| Lithuanian | + | + | + |
| Polish | + | + | + |
| Portuguese (Brazil) | + | + | + |
| Romanian | + | + | + |
| Russian | + | + | + |

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| | | | |
|---|---|---|---|
| Serbian | + | + | + |
| Slovak | + | + | + |
| Spanish | + | + | + |
| Swedish | + | + | + |
| Turkish | + | + | + |
| Ukrainian | + | + | + |

### 3.3.4 User Interface

The table shows which user interface and their themes are supported.

| User Interface | Stimulsoft Reports. Fx for Flex | Stimulsoft Reports.Fx for PHP | Stimulsoft Reports.Fx for Java |
|---|---|---|---|
| Office 2000 | | | |
| Office XP | | | |
| Standard (Microsoft Office 2003) | | | |
| Blue | | | |
| Silver | | | |
| Black | | | |
| Ribbon (Microsoft Office 2007) | | | |
| Blue | + | + | + |
| Silver | | | |
| Black | | | |
| Ribbon (Microsoft Office 2010) | | | |
| Blue | | | |
| Silver | | | |
| Black | | | |
| Ribbon (Microsoft Office 2013) | | | |
| White | | | + |
| LightGray | | | |
| DarkGray | | | |

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| | | | |
|---|---|---|---|
| Black | | | |
| Windows 7 | | | |
| Vista | | | |

### 3.3.5 Reporting Features

Stimulsoft Reports supports great many features. Here is the list of them.

| Reporting Features | Stimulsoft Reports. Fx for Flex | Stimulsoft Reports.Fx for PHP | Stimulsoft Reports.Fx for Java |
|---|---|---|---|
| Alpha blending | + | + | + |
| Data aggregation | + | + | + |
| Data filtering | + | + | + |
| Data grouping | + | + | + |
| ToolTips | + | + | + |
| Data sorting | + | + | + |
| Dynamic sorting | + | + | + |
| Different page sizes | + | + | + |
| Drag & Drop | + | + | + |
| Query Builder | | | |
| Expressions | | | |
| Text Expressions | + | + | + |
| Calculating Values In Expressions | + | + | + |
| Multi-line Expressions | + | + | + |
| Conditional Expressions | + | + | + |
| Aliases In Expressions | + | + | + |
| Appearance | | | |
| Borders | + | + | + |
| Horizontal Alignment | + | + | + |
| Vertical Alignment | + | + | + |
| Styles | + | + | + |
| Alternate Row Styles | + | + | + |

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| | | | |
|---|---|---|---|
| Conditional formatting | | | |
| Value Condition | + | + | + |
| Operators | + | + | + |
| Expression Condition | + | + | + |
| Multi Part Conditions | + | + | + |
| Data Bar Condition | | | |
| Color Scale Condition | | | |
| Icon Set Condition | | | |
| Output text parameters | | | |
| Multiline text | + | + | + |
| Trimming in the end of text line | + | + | + |
| Prevent showing incompletely visible lines | + | + | + |
| Lines of underlining | | | |
| Text rotation | | | |
| Processing Duplicates | + | + | + |
| Text formatting | | | |
| General | + | + | + |
| Numerical | + | + | + |
| Currency | + | + | + |
| Date | + | + | + |
| Time | + | + | + |
| Percentage | + | + | + |
| Boolean | + | + | + |
| Custom | + | + | + |
| Formatting in Text | + | + | + |
| HTML tags | | | |
| <font> | + | + | + |
| <b> | + | + | + |
| <br> | + | + | + |
| <i> | + | + | + |

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| | | | |
|---|---|---|---|
|  | + | + | + |
| <u> | + | + | + |
| <s> | + | + | + |
| <sup> | | | |
| <sub> | | | |
|  | + | + | + |
| <p> | + | + | + |
| <ol> | | | |
| <ul> | | | |
| <background-color> | + | + | + |
| <text-align> | + | + | + |
| <letter-spacing> | | | |
| <word-spacing> | | | |
| <line-height> | | | |
| Special Symbols | + | + | + |
| Rich Text | | | |
| Images | | | |
| Loading image from file | + | + | + |
| Loading image from report code | + | + | + |
| Loading image from data field | + | + | + |
| Autosize | | | |
| Can Grow | + | + | + |
| Can Shrink | + | + | + |
| Automatically Resizing Text | + | + | + |
| Automatically Resizing Panels | + | + | + |
| Automatically Resizing Bands | + | + | + |
| Primitives | | | |
| Arrow | + | + | + |
| Diagonal Line Down | + | + | + |

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| | | | |
|---|---|---|---|
| Diagonal Line Up | + | + | + |
| Horizontal Line | + | + | + |
| Left and Right Line | + | + | + |
| Oval | + | + | + |
| Rounded Rectangle | + | + | + |
| Top and Bottom Line | + | + | + |
| Triangle | + | + | + |
| Vertical Line | + | + | + |
| Complex Arrow | + | + | + |
| Bent Arrow | + | + | + |
| Chevron | + | + | + |
| Division | + | + | + |
| Equal | + | + | + |
| Flowchart: Card | + | + | + |
| Flowchart: Collate | + | + | + |
| Flowchart: Decision | + | + | + |
| Flowchart: Manual Input | + | + | + |
| Flowchart: Off Page Connector | + | + | + |
| Flowchart: Preparation | + | + | + |
| Flowchart: Sort | + | + | + |
| Frame | + | + | + |
| Minus | + | + | + |
| Multiply | + | + | + |
| Parallelogram | + | + | + |
| Plus | + | + | + |
| Regular: Pentagon | + | + | + |
| Trapezoid | + | + | + |
| Snip Same Side Corner Rectangle | + | + | + |
| Snip Diagonal Side Corner Rectangle | + | + | + |
| Scripts | + | + | + |

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| | | | |
|---|---|---|---|
| Watermark | | | |
| Text | + | + | + |
| Image | + | + | + |
| Pagination | + | + | + |
| Navigation bar | + | + | + |
| Formatted text | + | + | + |
| Report Globalization | + | + | + |
| Save to GoogleDocs | | | |
| Gradient fills | + | + | + |
| Hierarchical reports | | | |
| Hyperlink embedding | + | + | + |
| Multiple reporting bands on a page | + | + | + |
| Page overlays | | | |
| Parameterized Reports | + | + | + |
| Pivot tables | | | |
| Segmented pages | + | + | + |
| Report style sheet | + | + | + |
| Report Checker | + | + | + |
| Right-To-Left | | | |
| Text component | | | |
| Text In Cells component | | | |
| Cross Table component | | | |
| Columns on page | | | |
| Chart Component | | | |
| Columns in Data Band | | | |
| WinForms report viewer | | | |
| Unicode, internationalization support | + | + | + |

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### 3.3.6 Tools

| Tools | Stimulsoft Reports.Fx for Flex | Stimulsoft Reports.Fx for PHP | Stimulsoft Reports.Fx for Java |
|---|---|---|---|
| Configurator | | | |
| Report Checker | | | |
| Report Comparer | | | |
| Installer | + | + | + |
| Report Browser | | | |
| Style Designer | | | |
| Designer | + | + | + |
| Viewer | + | + | + |

### 3.3.7 Product Comparison

Please see the table below to find which components are Stimulsoft Reports.

| Product Comparison | Stimulsoft Reports.Fx for Flex | Stimulsoft Reports.Fx for PHP | Stimulsoft Reports.Fx for Java |
|---|---|---|---|
| **Report Viewer** | | | |
| Flash | + | + | + |
| Java | | | + |
| DHTML | | | + |
| **Report Designer** | | | |
| Flash | + | + | + |
| Standalone AIR | + | + | + |
| **Report Engines** | | | |
| Flash Report Engine | + | + | + |
| Java Report Engine | | | + |

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## 3.3.8 System Requirements

The table helps you to check which system parameters are necessary for using Stimulsoft Reports.

| System Requirements | Stimulsoft Reports.Fx for Flex | Stimulsoft Reports.Fx for PHP | Stimulsoft Reports.Fx for Java |
|---|---|---|---|
| .NET Framework 1.1 (версия 2008.1) | | | |
| .NET Framework 2.0 | | | |
| .NET Framework 3.0 | | | |
| .NET Framework 3.5 | | | |
| .NET Framework 4.0 | | | |
| .NET Framework 4.5 | | | |
| Microsoft Visual Studio 2005 | | | |
| Microsoft Visual Studio 2008 | | | |
| Microsoft Visual Studio 2010 | | | |
| Microsoft Visual Studio 2012 | | | |
| Microsoft Expression Blend | | | |
| Flash Builder 4 | + | | |
| Adobe Flash Player 10 and higher | + | + | + |
| Product Architecture: | | | |
| x86 | + | + | + |
| x64 | + | + | + |
| ARM | | | |
| Component Type: | | | |
| .NET WinForms | | | |
| ASP.NET | | | |
| ASP.NET MVC | | | |
| WPF | | | |

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| | | | |
|---|---|---|---|
| Silverlight | | | |
| PHP | | + | |
| Flex | + | | |
| Metro | | | |
| Java 1.5+ | | | + |
| WCF | | | |
| Supported OS: | | | |
| Windows 98 | + | + | + |
| Windows ME | + | + | + |
| Windows 2000 | + | + | + |
| Windows Server 2003 | + | + | + |
| Windows XP | + | + | + |
| Windows Vista | + | + | + |
| Windows 7 | + | + | + |
| Windows 8 | + | + | + |
| Windows 8 ARM | | | |
| Linux | | + | + |
| Mac OS X | | + | + |

## 3.3.9 Reports

The list of common reports you can create with the reporting tools. No doubts you may create a report of any complexity according to your needs.

| Reports | Stimulsoft Reports. Fx for Flex | Stimulsoft Reports.Fx for PHP | Stimulsoft Reports.Fx for Java |
|---|---|---|---|
| Basic reports | + | + | + |
| Reports with Columns | + | + | + |
| Master-Detail Reports | + | + | + |
| Reports with Groups | + | + | + |
| Hierarchical Reports | + | + | + |

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| | | | |
|---|---|---|---|
| Reports with Business Object | | | |
| Interactive Reports | | | |
| Invoice | + | + | + |
| Tables | | | |
| Reports with Charts | + | + | + |
| Cross-Tab Reports | + | + | + |
| Reports with Empty Bands | + | + | + |
| Reports with Containers | + | + | + |
| Sub-reports | + | + | + |
| Reports with Dialogs | | | |
| Report with Pages Segments | + | + | + |

# 4 Getting Started

This section discusses basic steps for creating various reports and showing them in a viewer. These examples demonstrate basic functionality of the reporting tool, and provide you with step-by-step instructions on how to create reports. We suggest that you review the following tutorials first.

## 4.1 Simple List Report

For better understanding this step-by-step instruction, please watch the video file.

Do the following steps to create a simple list report:

1. Run the designer;
2. Connect data:
   2.1. Create **New Connection**;
   2.2. Create **New Data Source**;

3. Put a **DataBand** on a page of a report template.

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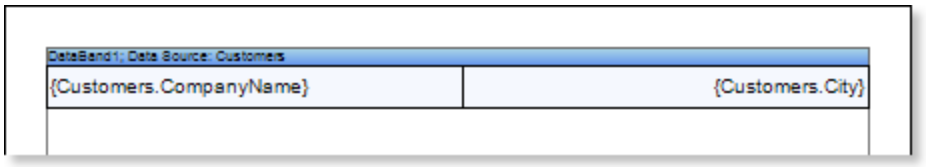
4. Edit **DataBand**:
   4.1. Align the **DataBand** by height;
   4.2. Change values of band properties. For example, set the **Can Break** property to **true**, if you wish the data band to be broken;
   4.3. Change the **DataBand** background;
   4.4. Enable **Borders** for the **DataBand**, if required;
   4.5. Change the border color.

5. Define the data source for the **DataBand** using the **Data Source** property:

6. Put text components with expressions in the **DataBand**. Where expression is a reference to the data field. For example, put two text components with expressions: **{Customers.CompanyName}** and **{Customers.City}**;
7. Edit **Text** and **TextBox** component:
   7.1. Drag and drop the text component in the **DataBand**;
   7.2. Change parameters of the text font: size, type, color;
   7.3. Align the text component by width and height;
   7.4. Change the background of the text component;
   7.5. Align text in the text component;
   7.6. Change the value of properties of the text component. For example, set the **Word Wrap** property to **true**, if you need a text to be wrapped;
   7.7. Enable **Borders** for the text component, if required.
   7.8. Change the border color.

The picture below shows a report template with the list:




8. Click the **Preview** button or invoke the **Viewer**, pressing **F5** or clicking the **Preview** menu item. After rendering all references to data fields will be changed on data form specified fields. Data will be output in consecutive order from the database that was defined for this report. The amount of copies of the **DataBand** in the rendered report will be the same as the amount of data rows in the database. The picture below shows a sample of a simple list report:

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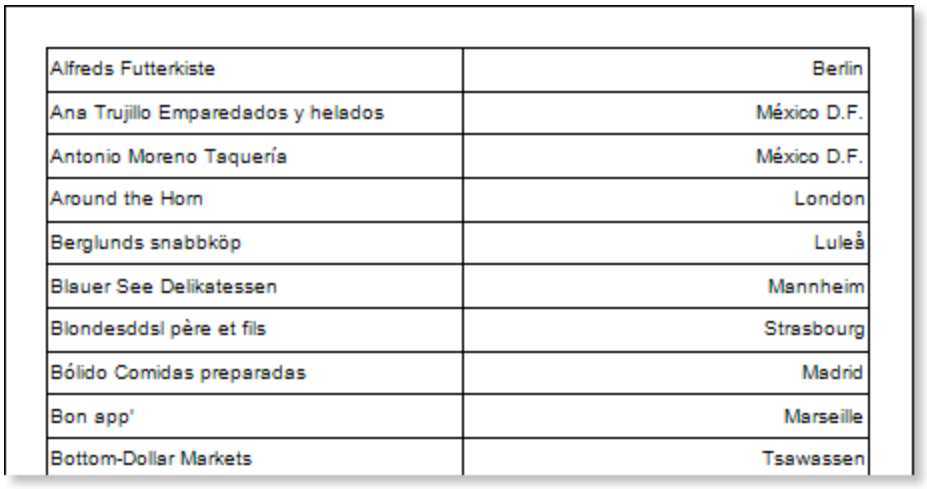
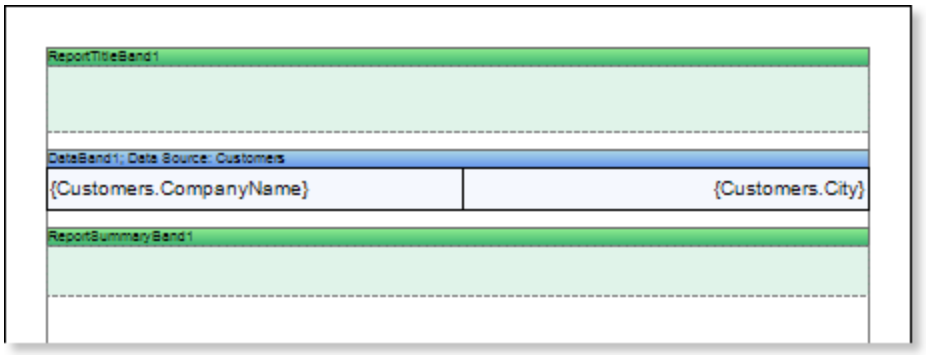


| | |
|---|---|
| Alfreds Futterkiste | Berlin |
| Ana Trujillo Emparedados y helados | México D.F. |
| Antonio Moreno Taquería | México D.F. |
| Around the Horn | London |
| Berglunds snabbköp | Luleå |
| Blauer See Delikatessen | Mannheim |
| Blondesddsl père et fils | Strasbourg |
| Bólido Comidas preparadas | Madrid |
| Bon app' | Marseille |
| Bottom-Dollar Markets | Tsawassen |

9. Go back to the report template;
10. If needed, add other bands to the report template, for example, **ReportTitleBand** and **ReportSummaryBand**;
11. Edit these bands:
    11.1. Align them by height;
    11.2. Change values of properties, if required;
    11.3. Change the background of bands;
    11.4. Enable **Borders**, if required;
    11.5. Set the border color.

The picture below shows a simple list report template with **ReportTitleBand** and **ReportSummaryBand:**




12. Put text components with expressions in the these bands. The expression in the text component is a title in the **ReportTitleBand**, and a summary in the **ReportSummaryBand**.
13. Edit text and text components:
    13.1. Drag and drop the text component in the band;
    13.2. Change font options: size, type, color;
    13.3. Align text component by height and width;
    13.4. Change the background of the text component;
    13.5. Align text in the text component;
    13.6. Change values of text component properties, if required;
    13.7. Enable **Borders** of the text component, if required;
    13.8. Set the border color.

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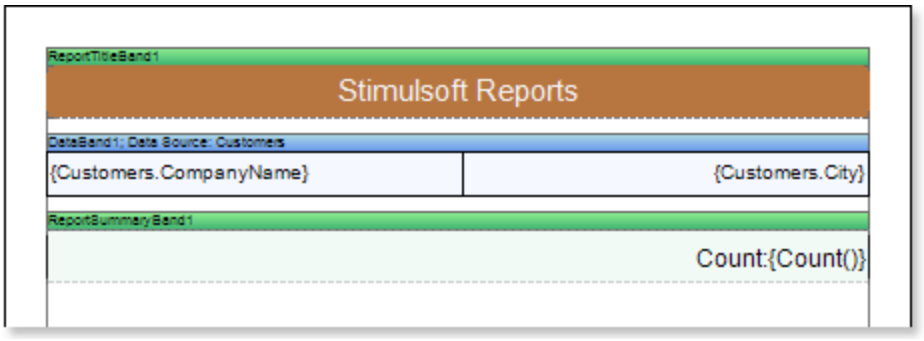
The picture below shows a sample of the simple list report template:




14. Click the **Preview** button or invoke the **Viewer**, pressing **F5** or clicking the **Preview** menu item. After rendering all references to data fields will be changed on data form specified fields. Data will be output in consecutive order from the database that was defined for this report. The amount of copies of the **DataBand** in the rendered report will be the same as the amount of data rows in the database. The picture below shows a sample of a simple list report with the title and summary:

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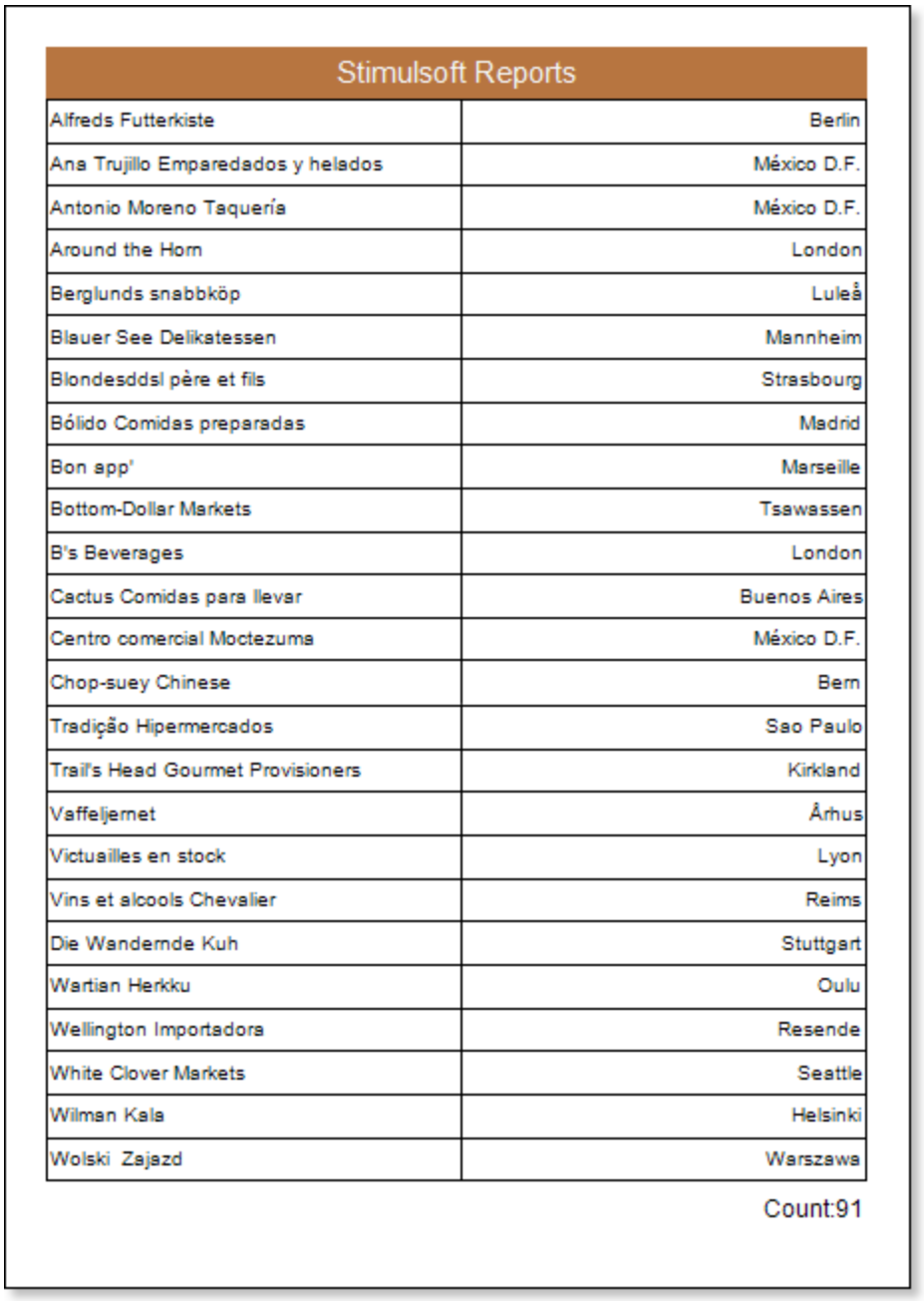

| Stimulsoft Reports | |
|---|---|
| Alfreds Futterkiste | Berlin |
| Ana Trujillo Emparedados y helados | México D.F. |
| Antonio Moreno Taquería | México D.F. |
| Around the Horn | London |
| Berglunds snabbköp | Luleå |
| Blauer See Delikatessen | Mannheim |
| Blondesddsl père et fils | Strasbourg |
| Bólido Comidas preparadas | Madrid |
| Bon app' | Marseille |
| Bottom-Dollar Markets | Tsawassen |
| B's Beverages | London |
| Cactus Comidas para llevar | Buenos Aires |
| Centro comercial Moctezuma | México D.F. |
| Chop-suey Chinese | Bern |
| Tradição Hipermercados | Sao Paulo |
| Trail's Head Gourmet Provisioners | Kirkland |
| Vaffeljernet | Århus |
| Victuailles en stock | Lyon |
| Vins et alcools Chevalier | Reims |
| Die Wandernde Kuh | Stuttgart |
| Wartian Herkku | Oulu |
| Wellington Importadora | Resende |
| White Clover Markets | Seattle |
| Wilman Kala | Helsinki |
| Wolski Zajazd | Warszawa |

Count:91

## Adding styles

1. Go back to the report template;
2. Select **DataBand**;
3. Change values of **Even style** and **Odd style** properties. If values of these properties are not set, then select the **Edit Styles** in the list of values of these properties and, using **Style Designer**, create a new style. The picture below shows the **Style Designer**:

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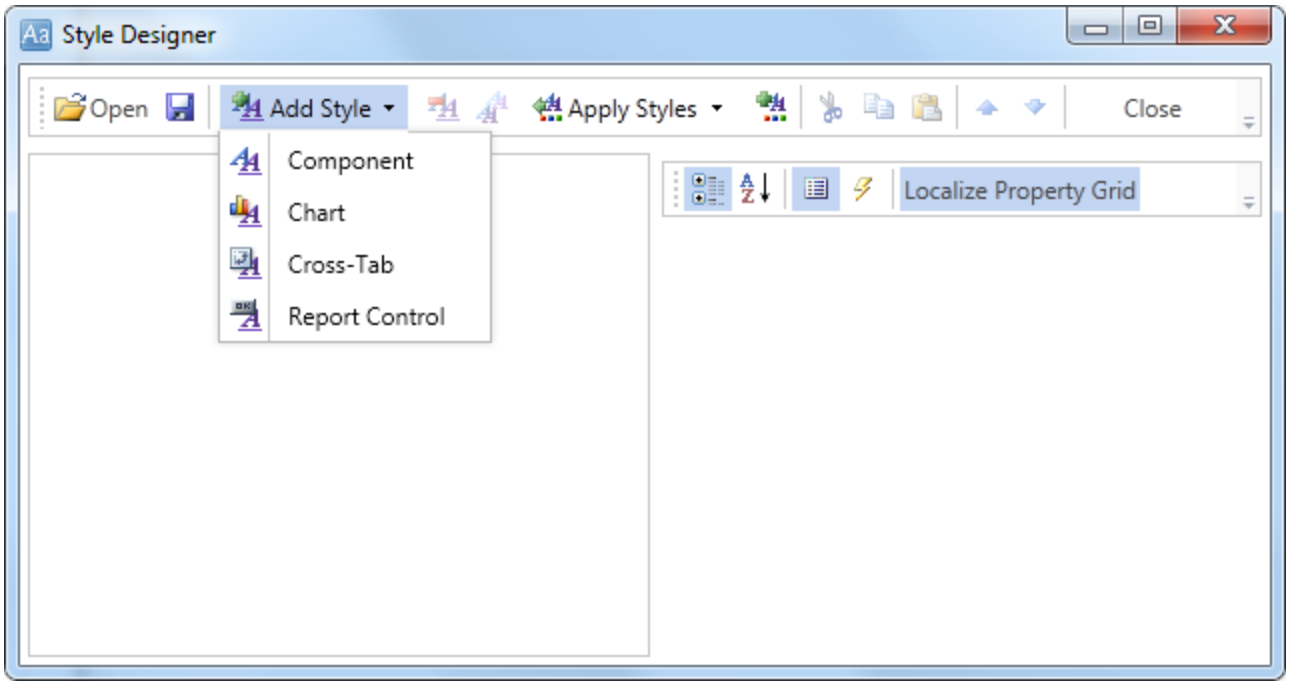


Click the **Add Style** button to start creating a style. Select **Component** from the drop down list. Set the **Brush.Color** property to change the background color of a row. The picture below shows a sample of the **Style Designer** with the list of values of the **Brush.Color** property:

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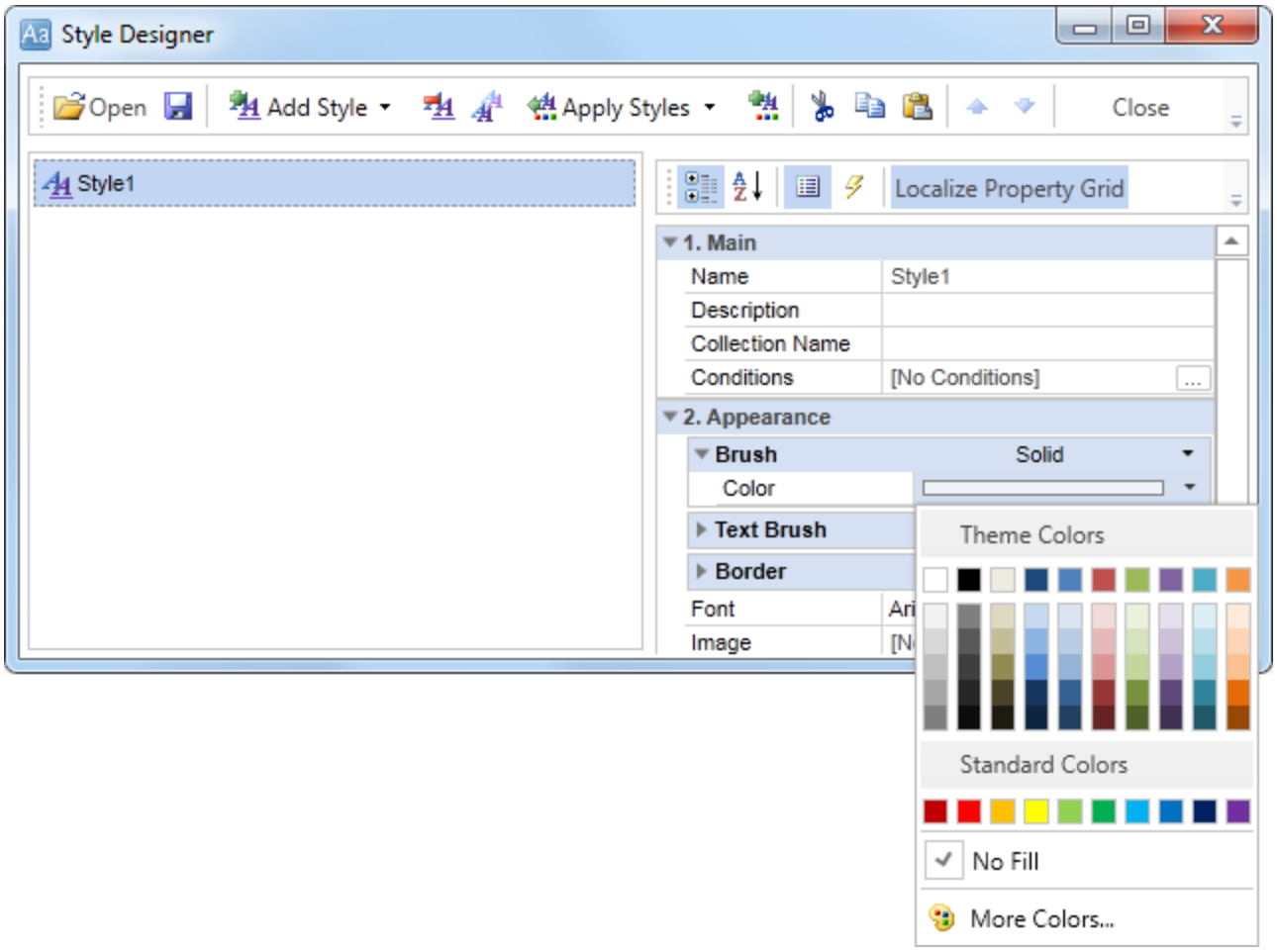


Click **Close**. Then a new value in the list of **Even style** and **Odd style** properties (a style of a list of odd and even rows) will appear.

4. To render the report, click the **Preview** button or invoke the **Viewer**, pressing **F5** or clicking the **Preview** menu item. The picture below shows a sample of a rendered simple list report with alternative color of rows:

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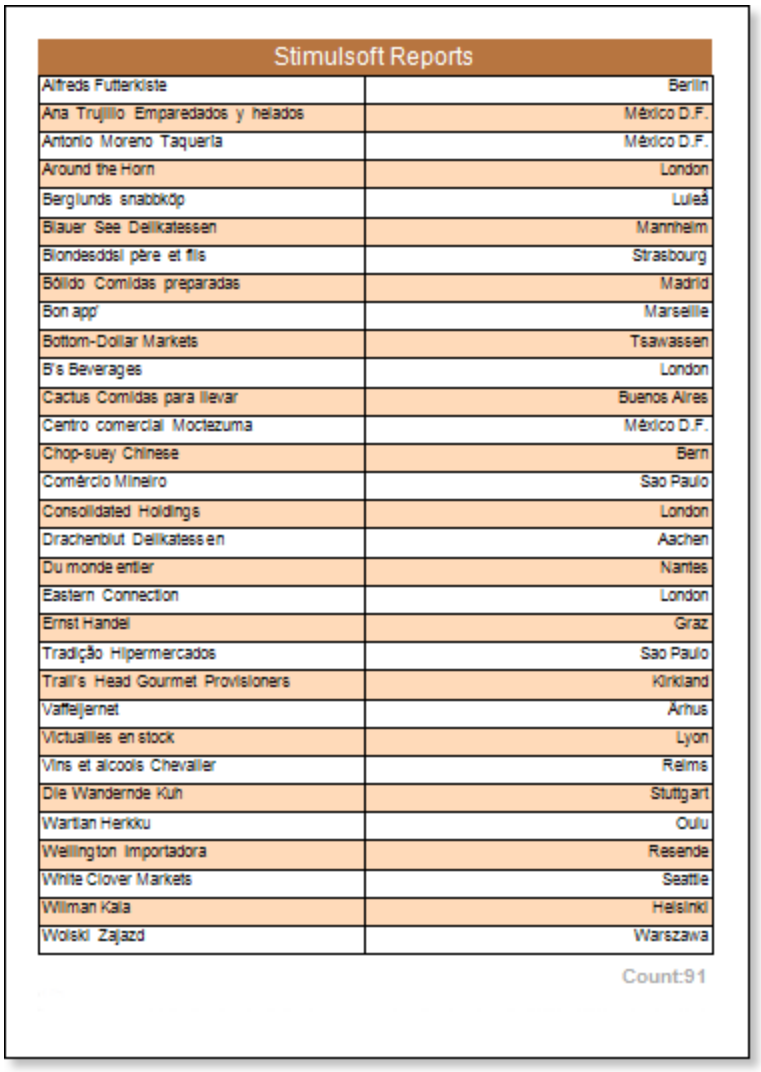

| Stimulsoft Reports | |
|---|---|
| Alfreds Futterkiste | Berlin |
| Ana Trujillo Emparedados y helados | México D.F. |
| Antonio Moreno Taquería | México D.F. |
| Around the Horn | London |
| Berglunds snabbköp | Luleå |
| Blauer See Delikatessen | Mannheim |
| Blondesddsl père et fils | Strasbourg |
| Bólido Comidas preparadas | Madrid |
| Bon app' | Marseille |
| Bottom-Dollar Markets | Tsawassen |
| B's Beverages | London |
| Cactus Comidas para llevar | Buenos Aires |
| Centro comercial Moctezuma | México D.F. |
| Chop-suey Chinese | Bern |
| Comércio Mineiro | Sao Paulo |
| Consolidated Holdings | London |
| Drachenblut Delikatessen | Aachen |
| Du monde entier | Nantes |
| Eastern Connection | London |
| Ernst Handel | Graz |
| Tradição Hipermercados | Sao Paulo |
| Trail's Head Gourmet Provisioners | Kirkland |
| Vaffeljernet | Århus |
| Victuailles en stock | Lyon |
| Vins et alcools Chevalier | Reims |
| Die Wandernde Kuh | Stuttgart |
| Wartian Herkku | Oulu |
| Wellington Importadora | Resende |
| White Clover Markets | Seattle |
| Wilman Kala | Helsinki |
| Wolski Zajazd | Warszawa |

Count:91

## 4.2 Master-Detail Report

For better understanding this step-by-step instruction, please watch the video file.

Do the following steps to create a master-detail report:

1. Run the designer;
2. Connect data:
   2.1. Create **New Connection**;
   2.2. Create **New Data Source**;

3. Create **Relation** between data sources. If the relation will not be created and/or the **Relation** property of the **Detail** data source will not be filled, then, for **Master** entry, all **Detail** entries will be output;
4. Put two **DataBands** on a page of a report template**.**

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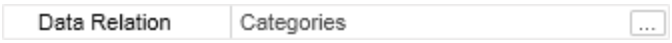
5. Edit **DataBand1** and **DataBand2**:
   5.1. Align them by height;
   5.2. Change values of required properties. For example, if to set the **PrintIfDetailEmpty** property of the **DataBand1** that is the **Master** component in the **Master-Detail** report to **true**, if it is necessary all **Master** entries be printed in any case, even if **Detail** entries not present. And set the **CanShrink** property of the **DataBand2** that is the **Detail** component in the **Master-Detail** report to **true**, if it is necessary to shrink this band;
   5.3. Change the background color of the **DataBand**;
   5.4. Enable **Borders** of the band, if required;

6. Define data sources for **DataBands**, a define the **Master** component. In our tutorial, the **Master** component is the **DataBand1**. This means that in the **Data Setup** window of the lower **DataBand2**, the **DataBand1** will be specified as the Master component in the **Master Component** tab;
7. Fill the **Data Relation** property of the **DataBand**, that is the **Detail** components. In our case this **DataBand2**:




8. Put text components with expressions on **DataBands**. Where expression is a reference to the data field. For example, put a text component with the expression **{Customers.CompanyName}** on the **DataBand1**. Put a text component with **{Products.ProductName}** and **{Products.UnitPrice}** expressions in the **DataBand2**;
9. Edit **Text** and **TextBox** component:
   9.1. Drag and drop the text component in **DataBands**;
   9.2. Change parameters of the text font: size, type, color;
   9.3. Align the text component by width and height;
   9.4. Change the background of the text component;
   9.5. Align text in the text component;
   9.6. Change the value of properties of the text component. For example, set the **Word Wrap** property to **true**, if you need a text to be wrapped;
   9.7. Enable **Borders** for the text component, if required.
   9.8. Change the border color.

The picture below shows the master-detail report template.

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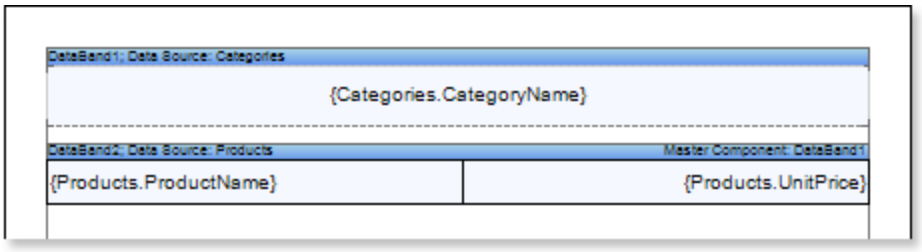
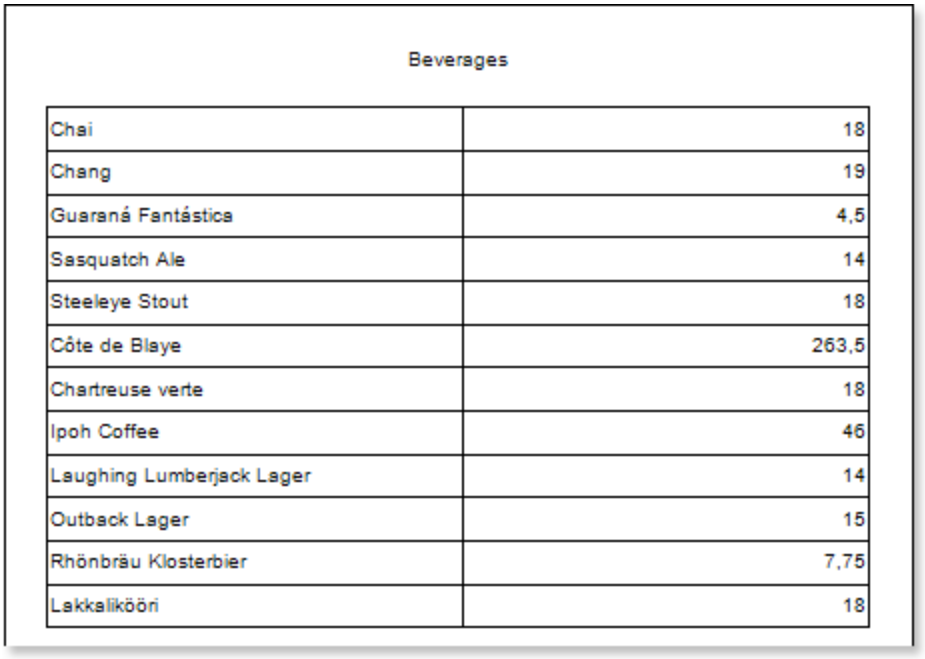



10. Click the **Preview** button or invoke the **Viewer**, pressing **F5** or clicking the **Preview** menu item. After rendering all references to data fields will be changed on data form specified fields. Data will be output in consecutive order from the database that was defined for this report. The amount of copies of the **DataBand** in the rendered report will be the same as the amount of data rows in the database. The picture below shows a sample of the master-detail report:



Beverages

| | |
|---|---|
| Chai | 18 |
| Chang | 19 |
| Guaraná Fantástica | 4,5 |
| Sasquatch Ale | 14 |
| Steeleye Stout | 18 |
| Côte de Blaye | 263,5 |
| Chartreuse verte | 18 |
| Ipoh Coffee | 46 |
| Laughing Lumberjack Lager | 14 |
| Outback Lager | 15 |
| Rhönbräu Klosterbier | 7,75 |
| Lakkalikööri | 18 |

11. Go back to the report template;
12. If needed, add other bands to the report template, for example, **HeaderBand** and **FooterBand**;
13. Edit these bands:
    13.1. Align them by height;
    13.2. Change values of properties, if required;
    13.3. Change the background of bands;
    13.4. Enable **Borders**, if required;
    13.5. Set the border color.

The picture below shows a simple list report template with **HeaderBand** and **FooterBand**:

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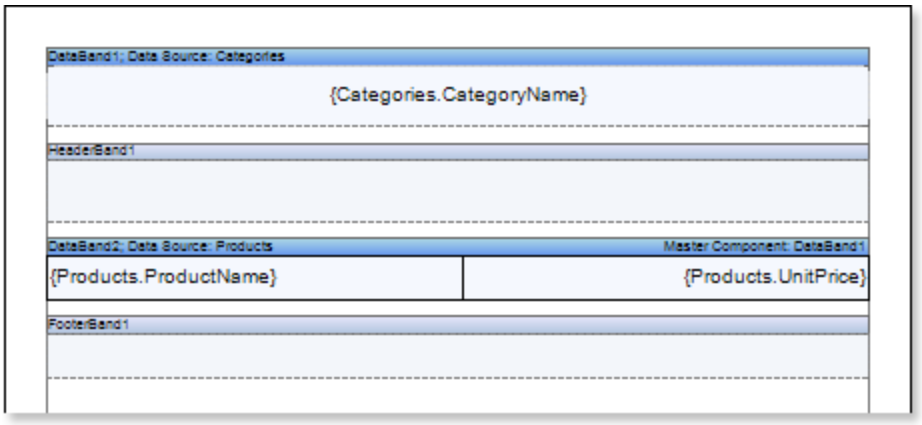
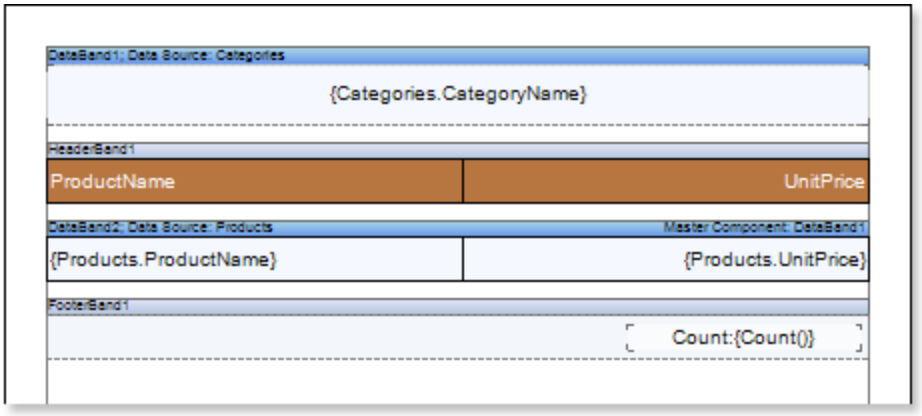



14. Put text components with expressions in the these bands. The expression in the text component is a header in the **HeaderBand**, and a footer in the **FooterBand**.
15. Edit text and text components:
    15.1. Drag and drop the text component in the band;
    15.2. Change font options: size, type, color;
    15.3. Align text component by height and width;
    15.4. Change the background of the text component;
    15.5. Align text in the text component;
    15.6. Change values of text component properties, if required;
    15.7. Enable **Borders** of the text component, if required;
    15.8. Set the border color.

The picture below shows a sample of the master-detail report template:




16. Click the **Preview** button or invoke the **Viewer**, pressing **F5** or clicking the **Preview** menu item. After rendering all references to data fields will be changed on data form specified fields. Data will be output in consecutive order from the database that was defined for this report. The amount of copies of the **DataBand** in the rendered report will be the same as the amount of data rows in the database. The picture below shows a sample of the master-detail report with header and footer:

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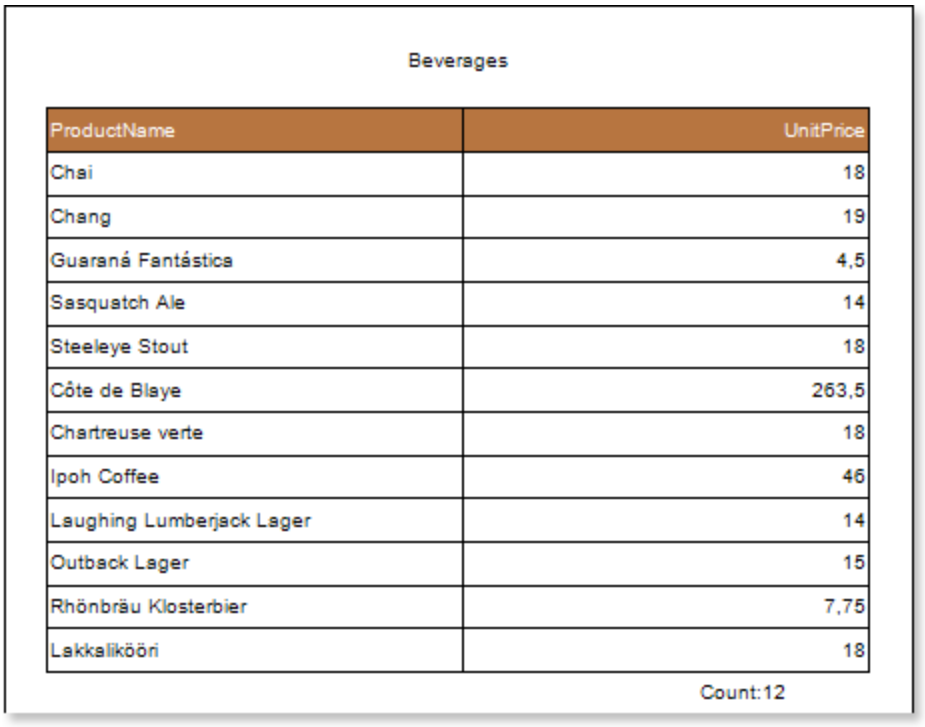

Beverages

| ProductName | UnitPrice |
|---|---|
| Chai | 18 |
| Chang | 19 |
| Guaraná Fantástica | 4,5 |
| Sasquatch Ale | 14 |
| Steeleye Stout | 18 |
| Côte de Blaye | 263,5 |
| Chartreuse verte | 18 |
| Ipoh Coffee | 46 |
| Laughing Lumberjack Lager | 14 |
| Outback Lager | 15 |
| Rhönbräu Klosterbier | 7,75 |
| Lakkalikööri | 18 |

Count:12

## Adding styles

1. Go back to the report template;
2. Select **DataBand**;
3. Change values of **Even style** and **Odd style** properties. If values of these properties are not set, then select the **Edit Styles** in the list of values of these properties and, using **Style Designer**, create a new style. The picture below shows the **Style Designer**:

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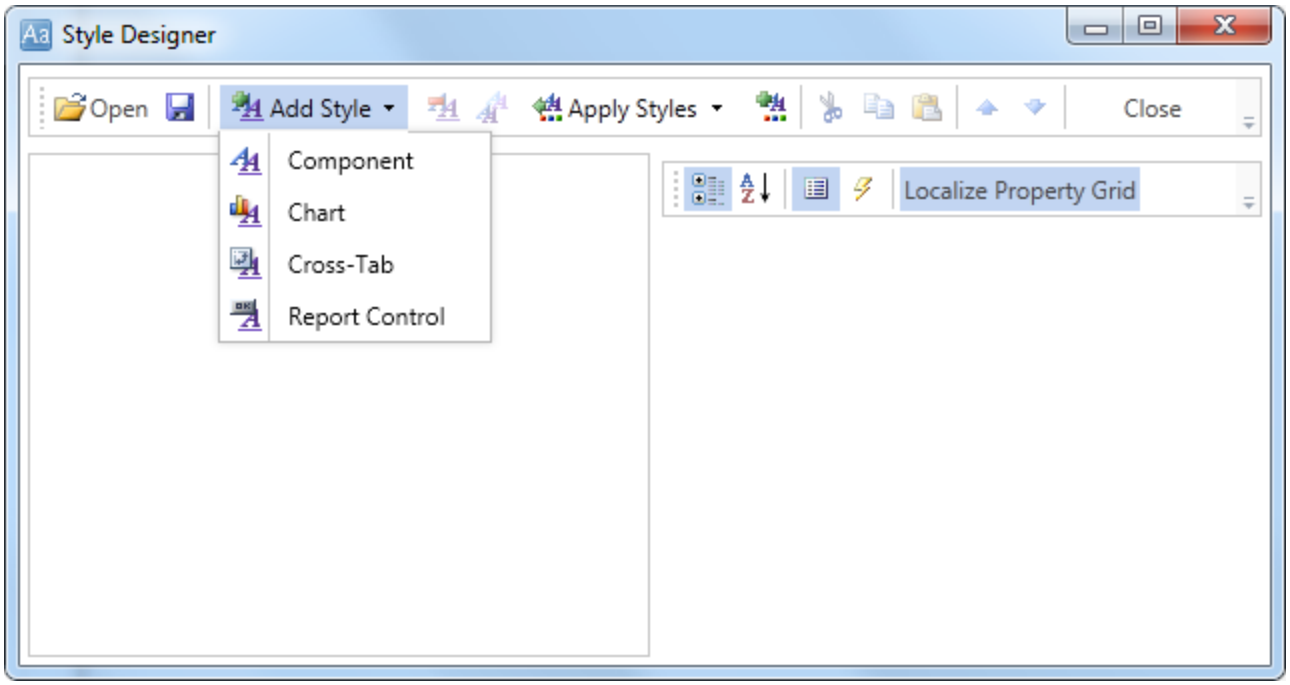


Click the **Add Style** button to start creating a style. Select **Component** from the drop down list. Set the **Brush.Color** property to change the background color of a row. The picture below shows a sample of the **Style Designer** with the list of values of the **Brush.Color** property**:**

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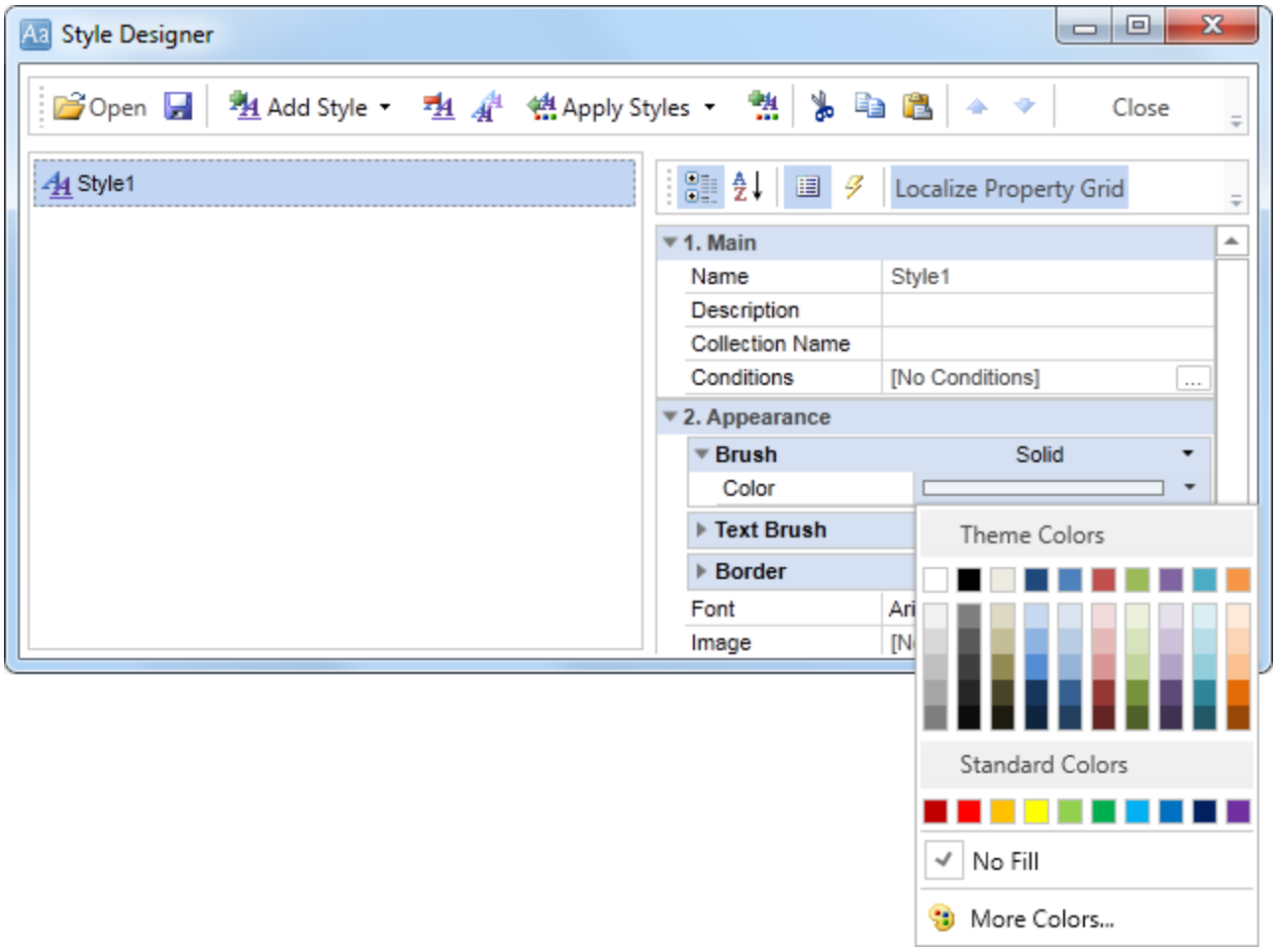


Click **Close**. Then in the list of **Even style** and **Odd style** properties a new value (a style of a list of odd and even rows).

4. To render the report, click the **Preview** button or invoke the **Viewer**, pressing **F5** or clicking the **Preview** menu item. The picture below shows a sample of a rendered master-detail report with alternative color of rows:

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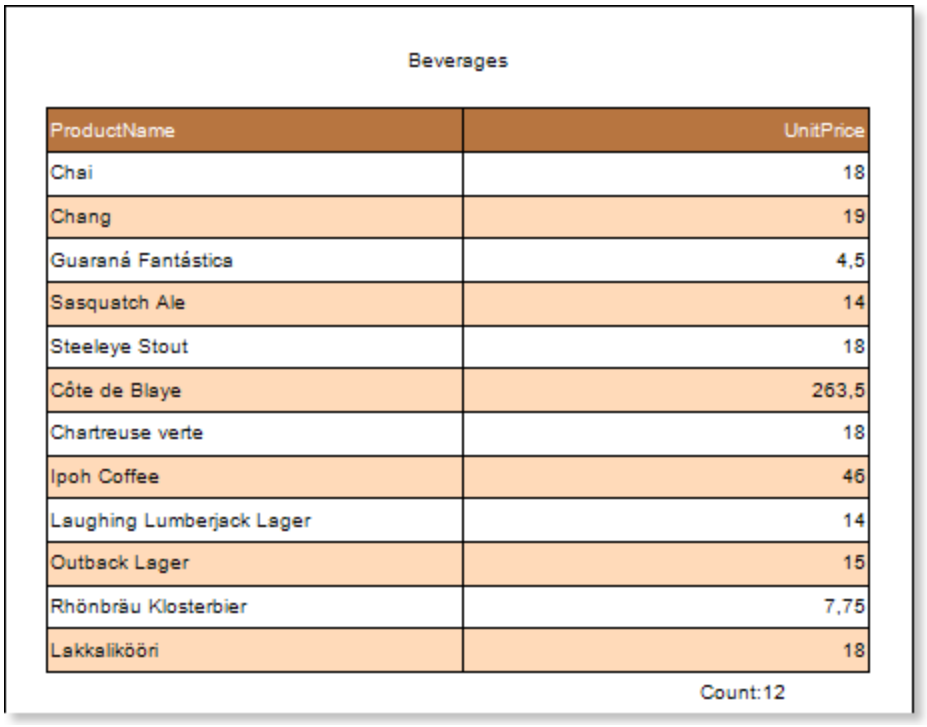


Beverages

| ProductName | UnitPrice |
|---|---|
| Chai | 18 |
| Chang | 19 |
| Guaraná Fantástica | 4,5 |
| Sasquatch Ale | 14 |
| Steeleye Stout | 18 |
| Côte de Blaye | 263,5 |
| Chartreuse verte | 18 |
| Ipoh Coffee | 46 |
| Laughing Lumberjack Lager | 14 |
| Outback Lager | 15 |
| Rhönbräu Klosterbier | 7,75 |
| Lakkalikööri | 18 |

Count:12

If to select the **DataBand1**, that is the **Master** component in the **Master-Detail** report, then it is possible to change values of **Even style**
and **Odd style** properties. In such a case, alternative row color will be applied only for **Master** entries.

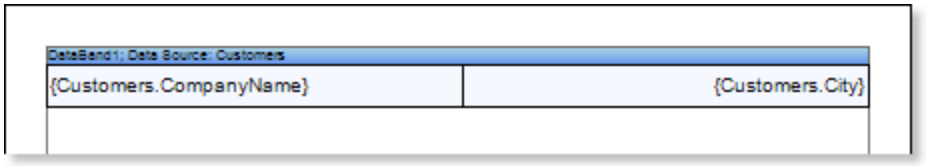
## 4.3 Report with Groups

For better understanding this step-by-step instruction, please watch the video file.

Do the following steps to create a report with grouping:

1. Run the designer;
2. Connect data:
   2.1. Create **New Connection**;
   2.2. Create **New Data Source**;

3. Create a report or open already created one. For example, we can take a simple list report created in the chapter "Simple List Report".




4. Add **GroupHeaderBand** and **GroupFooterBand** to the report template. The **GroupHeaderBand**

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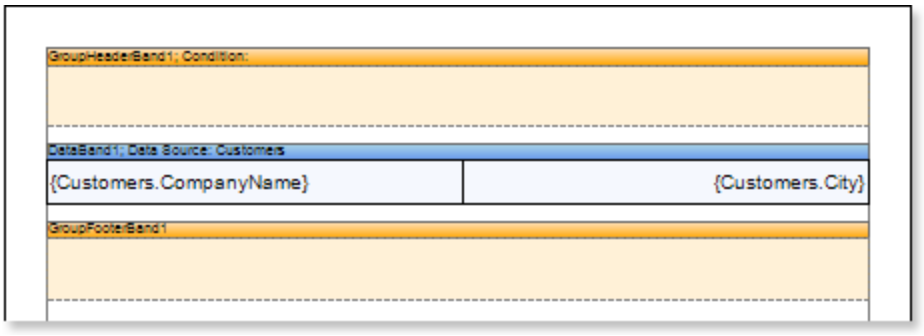
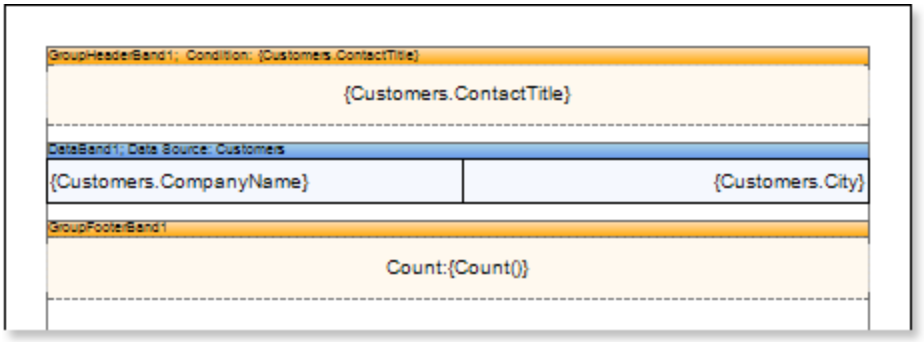
should be placed higher than the **DataBand** to what it is related to. The **GroupFooterBand** is placed under the **Data to** what **GroupHeader** is related. Each **GroupFooter** corresponds to a specified **GroupHeader**. The **GroupFooter** band will not output without **GroupHeader**. The picture below shows a report template with added **GroupHeaderBand** and **GroupFooterBand**.




5. Edit **GroupHeaderBand** and **GroupFooterBand**:
   5.1. Align them be height;
   5.2. Change values of properties according to requirements. For example, set the **KeepGroupHeaderTogether** property for the **GroupHeaderBand to true**, it is necessary to keep the group header with the group. And for the **GroupFooterBand** set the **KeepFooterTogether** to **true**, if it is required to keep the footer with the group;
   5.3. Set the background of the **GroupHeaderBand**;
   5.4. Enable **Borders** of the **DataBand**, if required;

6. Set the condition data grouping in the report using the **Condition** property of the **GroupHeader** band. Condition of grouping can be set by setting the expression or by selecting the data column from the data source. In our tutorial, define the **{Customers.ContactTitle}** expression in the condition of grouping.
7. Put a text component in the **GroupHeaderBand** and put the expression **{Customers.ContactTitle}** into this text component. Put a text component in the **GroupFooterBand** and put the expression **{Count()}** into this text component. The **{Count()}** function will count summary by the amount of entries in each group. The picture below shows a report template with the condition of grouping set, and text components placed in **GroupHeaderBand** and **GroupFooterBand:**




8. Edit expressions and text components:
   8.1. Drag and drop the text component in **GroupHeaderBand** and **GroupFooterBand**;
   8.2. Change parameters of the text font: size, type, color;

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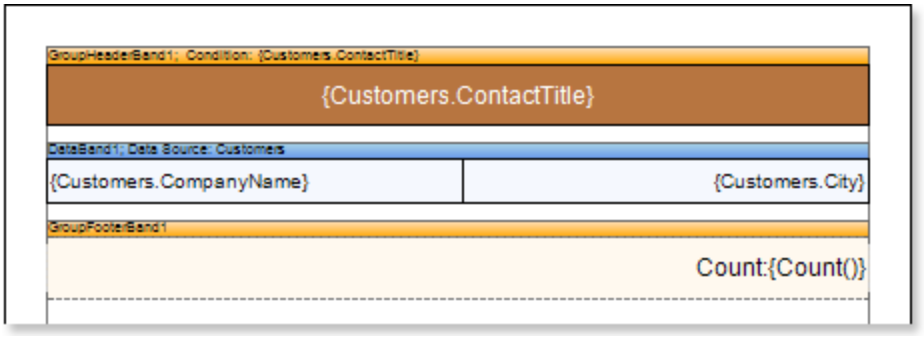
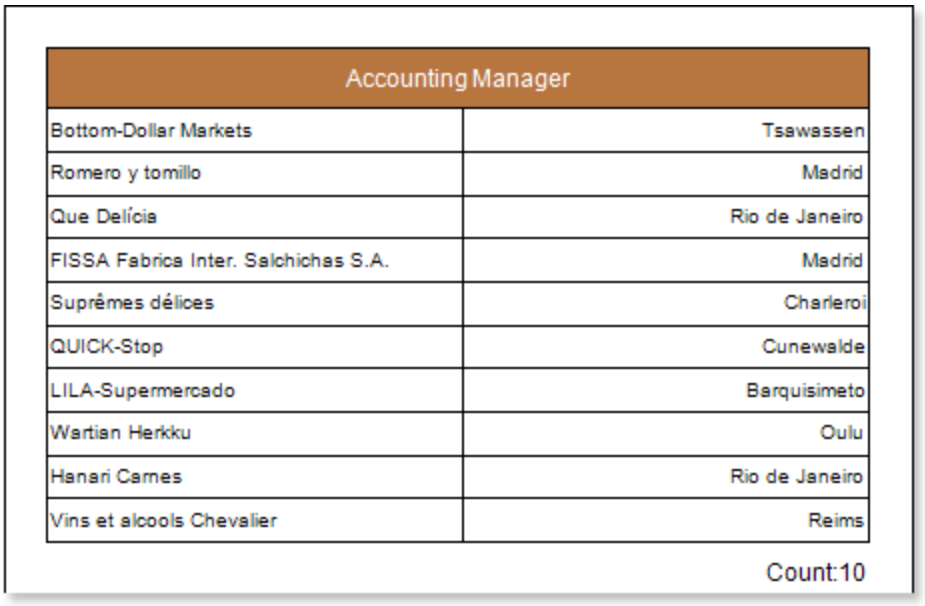
8.3.. Align the text component by width and height;
8.4. Change the background of the text component;
8.5. Align text in the text component;
8.6. Change the value of properties of the text component. For example, set the **Word Wrap** property to **true**, if you need a text to be wrapped;
8.7. Enable **Borders** for the text component, if required.
8.8. Change the border color.

The picture below shows a sample of the edited report template with grouping:




9. Click the **Preview** button or invoke the **Viewer**, pressing **F5** or clicking the **Preview** menu item. After rendering all references to data fields will be changed on data form specified fields. Data will be output in consecutive order from the database that was defined for this report. The amount of copies of the **DataBand** in the rendered report will be the same as the amount of data rows in the database. The picture below shows a sample of the report with grouping:



| Accounting Manager | |
|---|---|
| Bottom-Dollar Markets | Tsawassen |
| Romero y tomillo | Madrid |
| Que Delícia | Rio de Janeiro |
| FISSA Fabrica Inter. Salchichas S.A. | Madrid |
| Suprêmes délices | Charleroi |
| QUICK-Stop | Cunewalde |
| LILA-Supermercado | Barquisimeto |
| Wartian Herkku | Oulu |
| Hanari Carnes | Rio de Janeiro |
| Vins et alcools Chevalier | Reims |

Count:10

## Adding styles

1. Go back to the report template;

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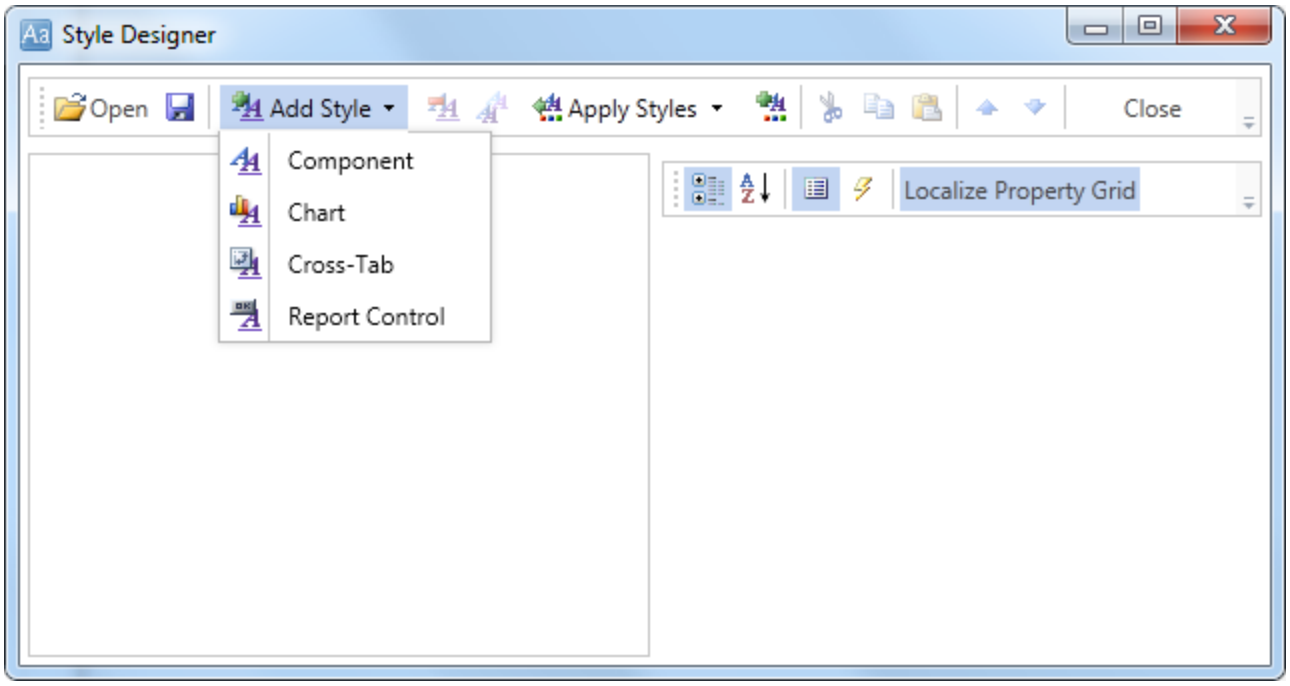
2. Select **DataBand**;
3. Change values of **Even style** and **Odd style** properties. If values of these properties are not set, then select the **Edit Styles** in the list of values of these properties and, using **Style Designer**, create a new style. The picture below shows the **Style Designer**:




Click the **Add Style** button to start creating a style. Select **Component** from the drop down list. Set the **Brush.Color** property to change the background color of a row. The picture below shows a sample of the **Style Designer** with the list of values of the **Brush.Color** property:

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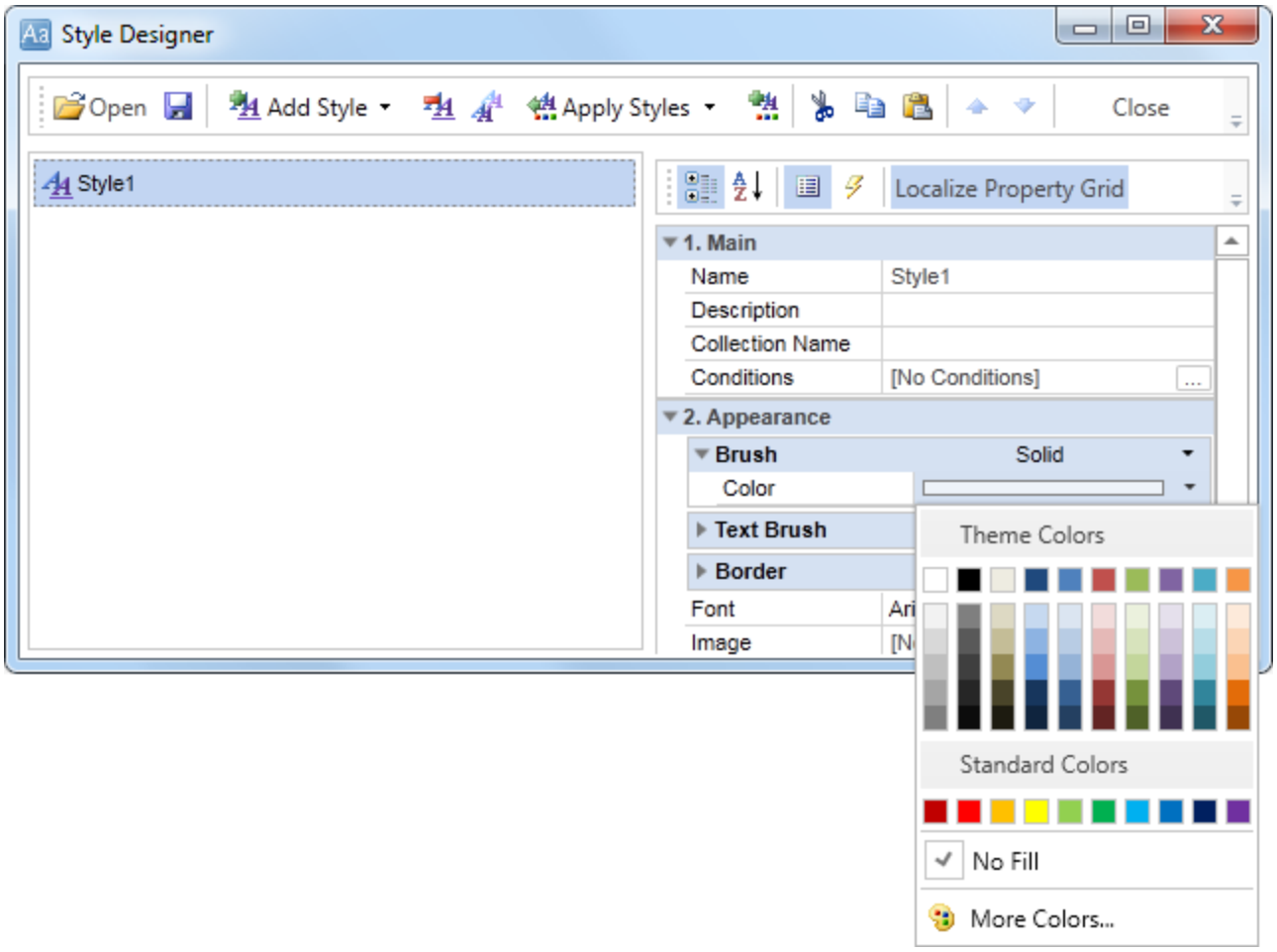


Click **Close**. Then in the list of **Even style** and **Odd style** properties a new value (a style of a list of odd and even rows).

4. To render the report, click the **Preview** button or invoke the **Viewer**, pressing **F5** or clicking the **Preview** menu item. The picture below shows a sample of a rendered report with grouping and alternative color of rows:

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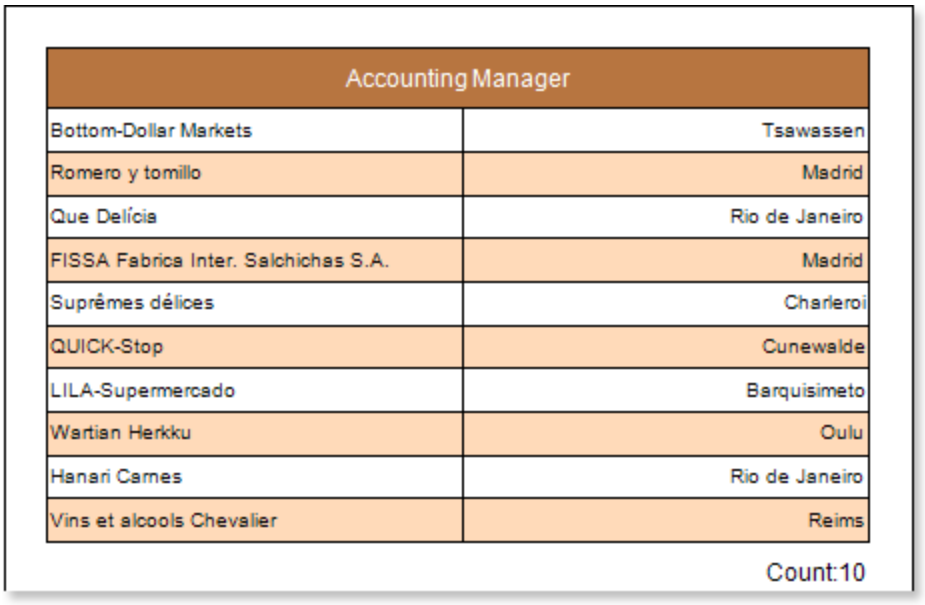


| Accounting Manager | |
|---|---|
| Bottom-Dollar Markets | Tsawassen |
| Romero y tomillo | Madrid |
| Que Delícia | Rio de Janeiro |
| FISSA Fabrica Inter. Salchichas S.A. | Madrid |
| Suprêmes délices | Charleroi |
| QUICK-Stop | Cunewalde |
| LILA-Supermercado | Barquisimeto |
| Wartian Herkku | Oulu |
| Hanari Carnes | Rio de Janeiro |
| Vins et alcools Chevalier | Reims |

Count:10

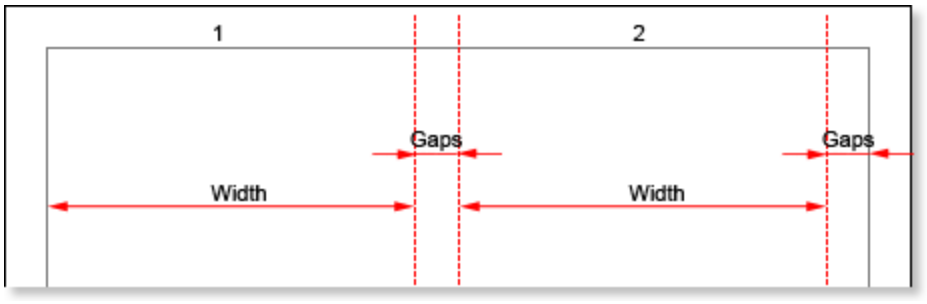
## 4.4 Report with Columns on Page

For better understanding this step-by-step instruction, please watch the video file.

Do the following steps to create a report with columns on a page:

1. Run the designer;
2. Connect data:
   2.1. Create **New Connection**;
   2.2. Create **New Data Source**;

3. Set column options: the number of columns, column width, and column gap. For example, set the number of columns equal to **2**, with the gap equal to **1**. The column width is created automatically. The picture below shows a sample of the report template with two columns:




4. Put **DataBand** on a page.

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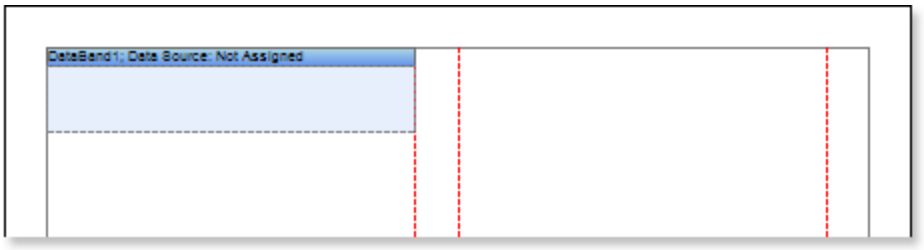
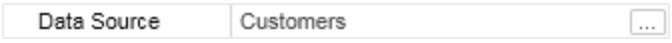
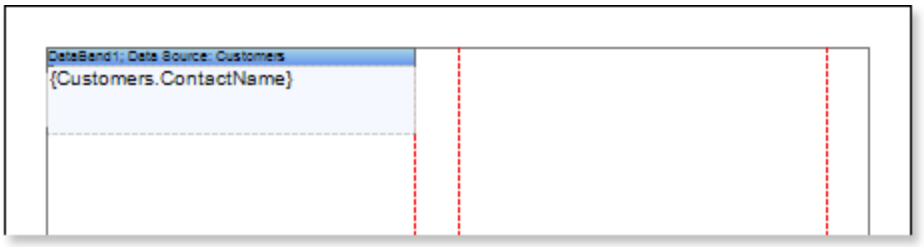



5. Edit **DataBand**:
   5.1. Align the **DataBand** by height;
   5.2. Change values of band properties. For example, set the **Can Break** property to **true**, if you wish the data band to be broken;
   5.3. Change the **DataBand** background;
   5.4. Enable **Borders** for the **DataBand**, if required;
   5.5. Change the border color.

6. Define the data source for the **DataBand** using the **Data Source** property**:**




7. Put text components with expressions on the **DataBand**. Where expression is a reference to the data field. For example, put two text components with expressions: **{Customers.ContactName}**.




8. Edit expressions and text components:
   8.1. Drag and drop the text component in **DataBand**;
   8.2. Change parameters of the text font: size, type, color;
   8.3. Align the text component by width and height;
   8.4. Change the background of the text component;
   8.5. Align text in the text component;
   8.6. Change the value of properties of the text component. For example, set the **Word Wrap** property to **true**, if you need a text to be wrapped;
   8.7. Enable **Borders** for the text component, if required.
   8.8. Change the border color.

The picture below shows a report template with edited text component:

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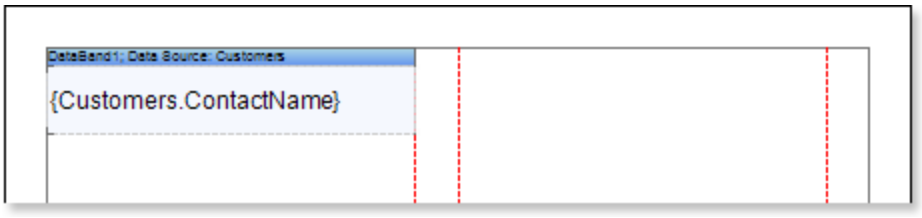
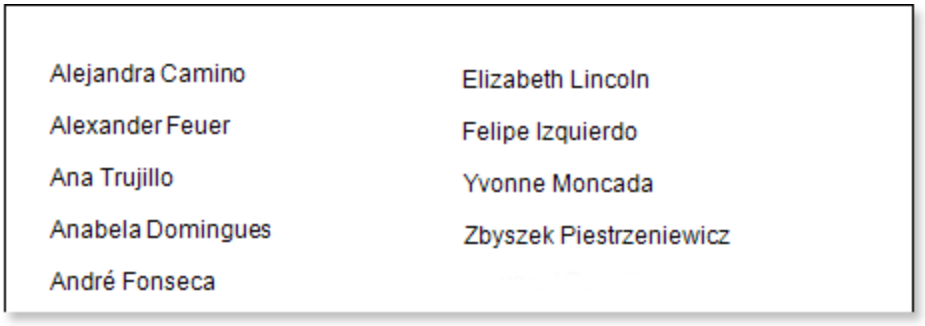
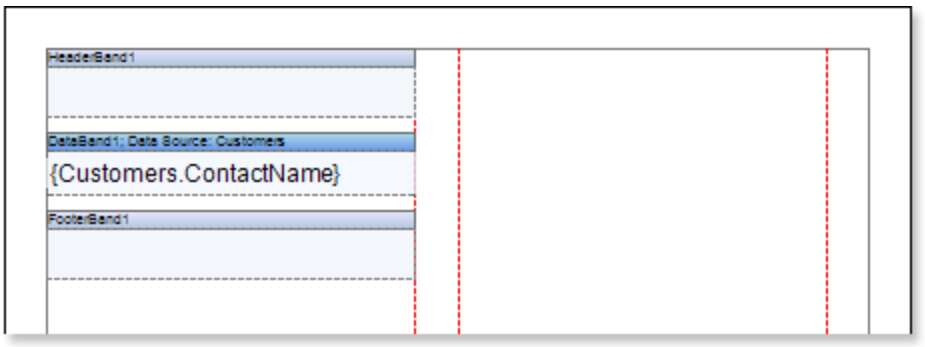



9. Click the **Preview** button or invoke the **Viewer**, pressing **F5** or clicking the **Preview** menu item. After rendering all references to data fields will be changed on data form specified fields. Data will be output in consecutive order from the database that was defined for this report. The amount of copies of the **DataBand** in the rendered report will be the same as the amount of data rows in the database. The picture below shows a sample of the report with two columns on a page:




Step **3** and **4** can be changed in sequence of doing. So you may put **DataBand** first and then set the column options on page.

10. Go back to the report template;
11. If needed, add other bands to the report template, for example, **HeaderBand** and **FooterBand**;




12. Edit these bands:
    12.1. Align them by height;
    12.2. Change values of properties, if required;
    12.3. Change the background of bands;
    12.4. Enable **Borders**, if required;
    12.5. Set the border color.

13. Put text components with expressions in the these bands. The expression in the text component is a

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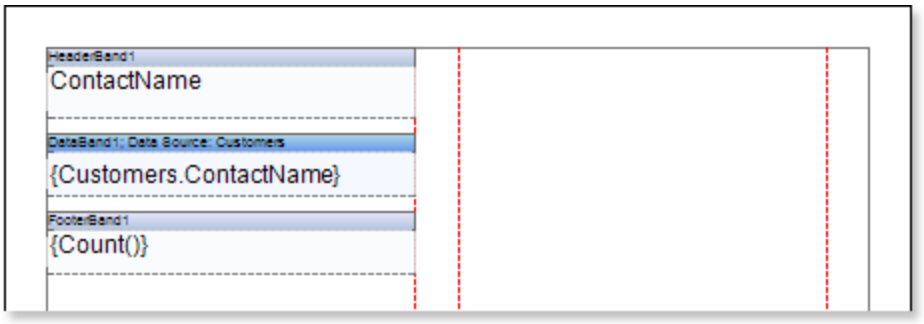
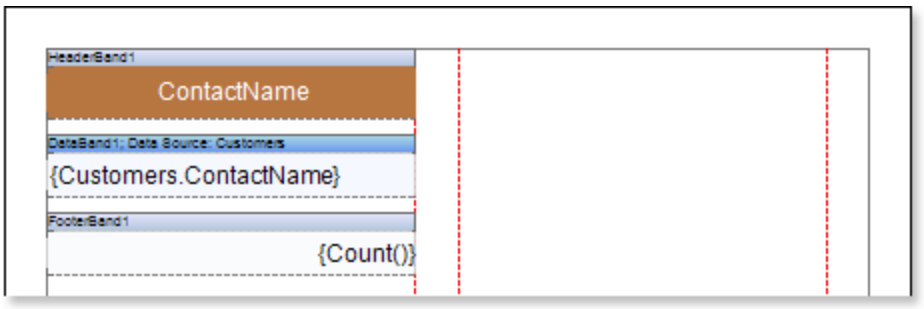
header in the **HeaderBand**, and a footer in the **FooterBand**.




14. Edit text and text components:
    14.1. Drag and drop the text component in the band;
    14.2. Change font options: size, type, color;
    14.3. Align text component by height and width;
    14.4. Change the background of the text component;
    14.5. Align text in the text component;
    14.6. Change values of text component properties, if required;
    14.7. Enable **Borders** of the text component, if required;
    14.8. Set the border color.

The picture below shows a sample of the report with two columns on a page:




15. Click the **Preview** button or invoke the **Viewer**, pressing **F5** or clicking the **Preview** menu item. After rendering all references to data fields will be changed on data form specified fields. Data will be output in consecutive order from the database that was defined for this report. The amount of copies of the **DataBand** in the rendered report will be the same as the amount of data rows in the database. The picture below shows a sample of the report with a header and a footer:

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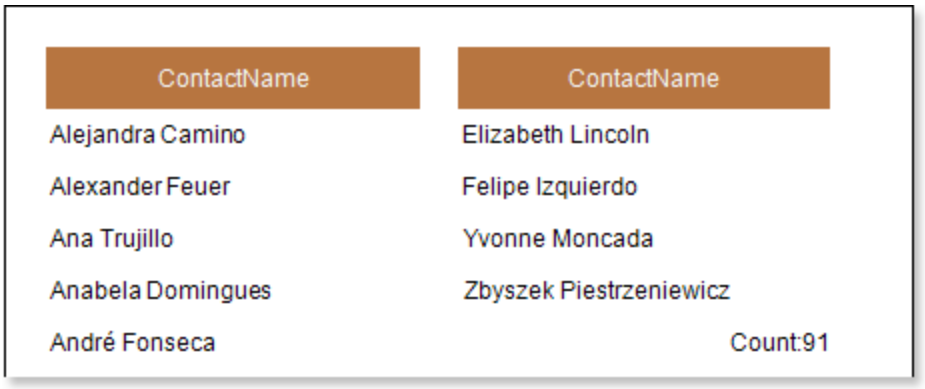
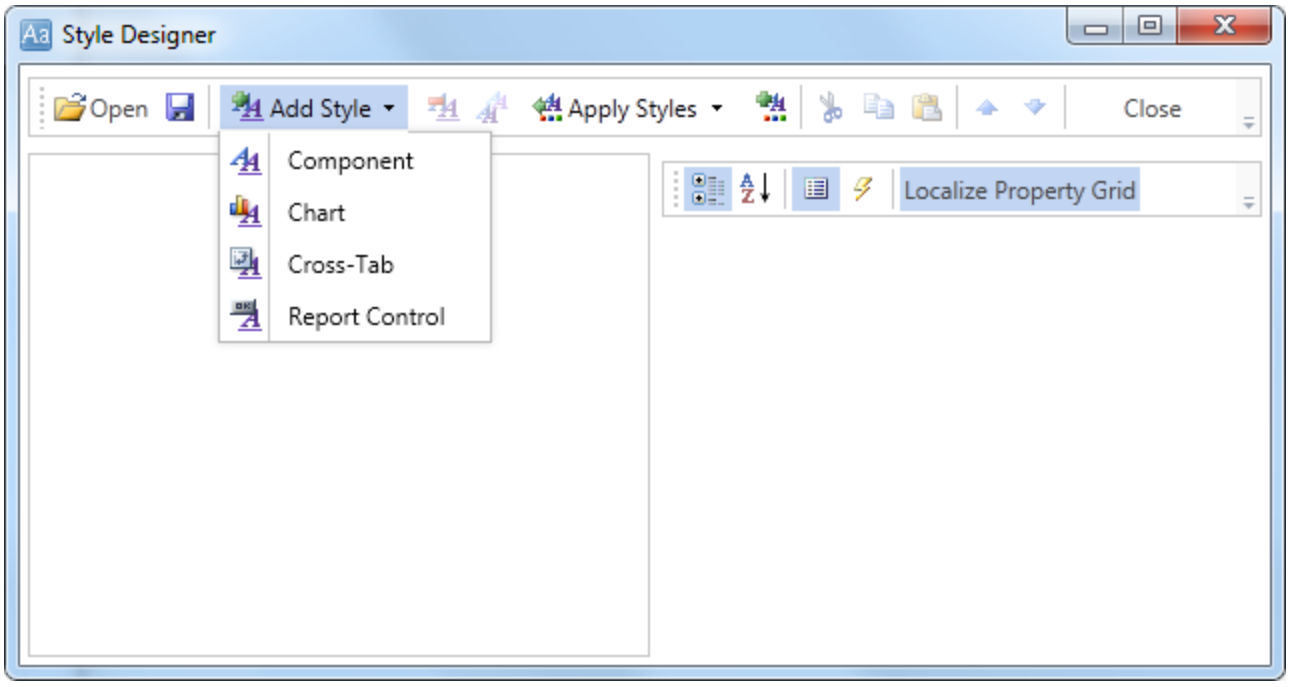



## Adding styles

1. Go back to the report template;
2. Select **DataBand**;
3. Change values of **Even style** and **Odd style** properties. If values of these properties are not set, then select the **Edit Styles** in the list of values of these properties and, using **Style Designer**, create a new style. The picture below shows the **Style Designer**:




Click the **Add Style** button to start creating a style. Select **Component** from the drop down list. Set the **Brush.Color** property to change the background color of a row. The picture below shows a sample of the **Style Designer** with the list of values of the **Brush.Color** property:

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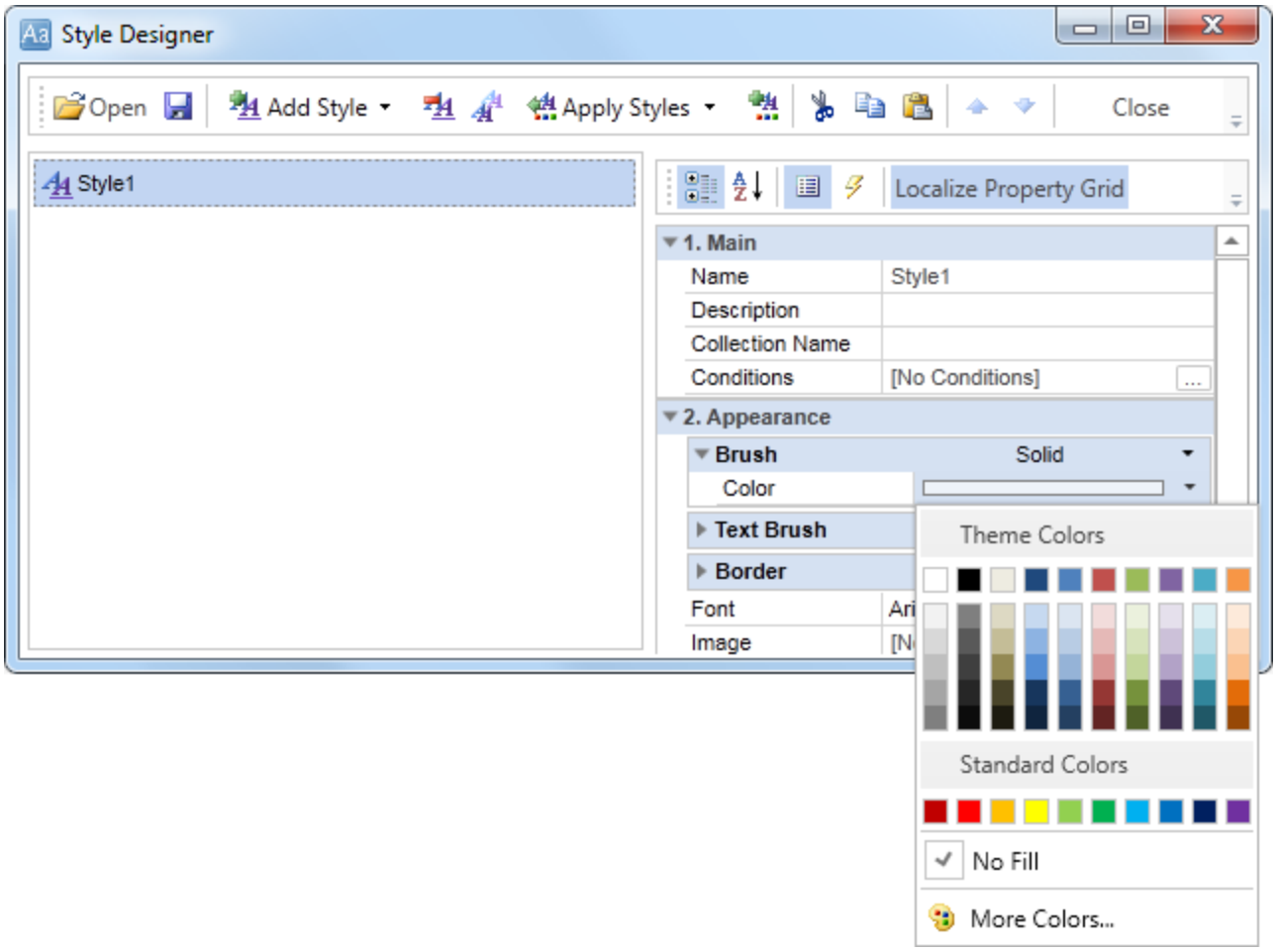
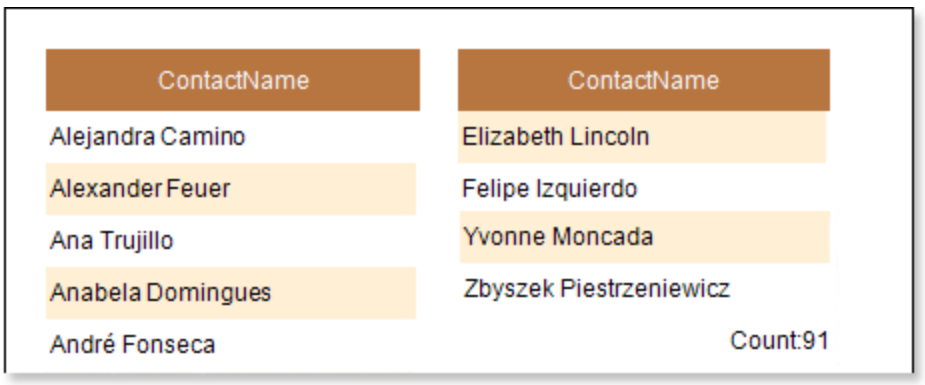



Click **Close**. Then in the list of **Even style** and **Odd style** properties a new value (a style of a list of odd and even rows).

4. To render the report, click the **Preview** button or invoke the **Viewer**, pressing **F5** or clicking the **Preview** menu item. The picture below shows a sample of a rendered report with columns on a page and alternative color of rows:

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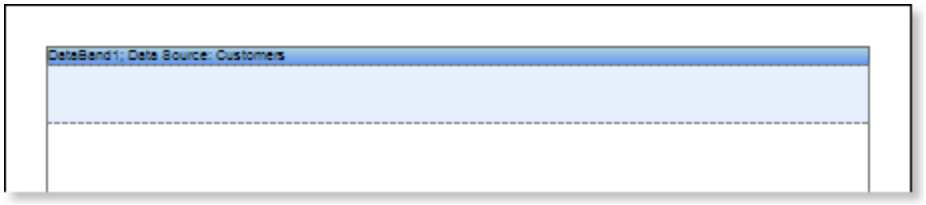
## 4.5 Report with Columns in Data Band

For better understanding this step-by-step instruction, please watch the video file.

Do the following steps to create a report with columns in DataBand:

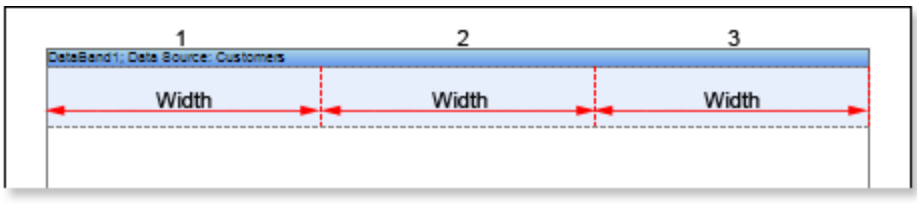
1. Run the designer;
2. Connect data:
   2.1. Create **New Connection**;
   2.2. Create **New Data Source**;

3. Put a **DataBand** on a page of a report template.

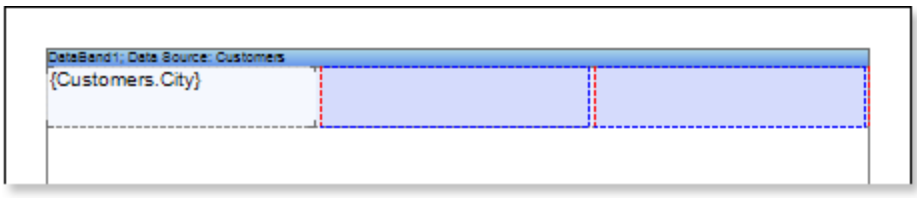



4. Define the data source for the **DataBand** using, for example, the **Data Source** property**:**

5. Set column options: the number of columns, column width, and column gap. For example, set the number of columns equal to **3**, with the gap equal to **0**. The column width is created automatically. The picture below shows a sample of the report template with two columns, placed in the **DataBand**:




6. Put a text component with expressions on the **DataBand**. Where expression is a reference to the data field. For example, put one text component with the **{Customers.City}** expression.




7. Edit expressions and text components:

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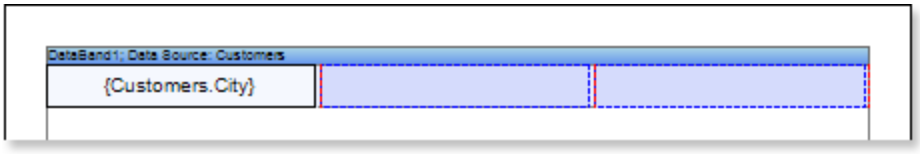
7.1. Drag and drop the text component in **DataBand**;
7.2. Change parameters of the text font: size, type, color;
7.3. Align the text component by width and height;
7.4. Change the background of the text component;
7.5. Align text in the text component;
7.6. Change the value of properties of the text component. For example, set the **Word Wrap** property to **true**, if you need a text to be wrapped;
7.7. Enable **Borders** for the text component, if required.
7.8. Change the border color.




8. Set the columns direction of data output using the **Column Direction** property. Read about this property in section Report Internals -> Columns.
9. Click the **Preview** button or invoke the **Viewer**, pressing **F5** or clicking the **Preview** menu item. After rendering all references to data fields will be changed on data form specified fields. Data will be output in consecutive order from the database that was defined for this report. The amount of copies of the **DataBand** in the rendered report will be the same as the amount of data rows in the database. The picture below shows samples of reports with columns rendered using different values of the **Column Direction** property.

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Down Then Across

| | | |
|---|---|---|
| 1.Aachen | 24.Elgin | 47.Madrid |
| 2.Albuquerque | 25.Eugene | 48.Madrid |
| 3.Anchorage | 26.Frankfurt a.M. | 49.Madrid |
| 4.Århus | 27.Genève | 50.Mannheim |
| 5.Barcelona | 28.Graz | 51.Marseille |
| 6.Barquisimeto | 29.Helsinki | 52.México D.F. |
| 7.Bergamo | 30.I. de Margarita | 53.México D.F. |
| 8.Berlin | 31.Kirkland | 54.México D.F. |
| 9.Bern | 32.Kobenhavn | 55.México D.F. |
| 10.Boise | 33.Köln | 56.México D.F. |
| 11.Bräcke | 34.Lander | 57.Montréal |
| 12.Brandenburg | 35.Leipzig | 58.München |
| 13.Bruxelles | 36.Lille | 59.Münster |
| 14.Buenos Aires | 37.Lisboa | 60.Nantes |
| 15.Buenos Aires | 38.Lisboa | 61.Nantes |
| 16.Buenos Aires | 39.London | 62.Oulu |
| 17.Butte | 40.London | 63.Paris |
| 18.Campinas | 41.London | 64.Paris |
| 19.Caracas | 42.London | 65.Portland |
| 20.Charleroi | 43.London | 66.Portland |
| 21.Cork | 44.London | 67.Reggio Emilia |
| 22.Cowes | 45.Luleå | 68.Reims |
| 23.Cunewalde | 46.Lyon | 69.Resende |

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Across Then Down

| | | |
|---|---|---|
| 1.Aachen | 2.Albuquerque | 3.Anchorage |
| 4.Århus | 5.Barcelona | 6.Barquisimeto |
| 7.Bergamo | 8.Berlin | 9.Bern |
| 10.Boise | 11.Bräcke | 12.Brandenburg |
| 13.Bruxelles | 14.Buenos Aires | 15.Buenos Aires |
| 16.Buenos Aires | 17.Butte | 18.Campinas |
| 19.Caracas | 20.Charleroi | 21.Cork |
| 22.Cowes | 23.Cunewalde | 24.Elgin |
| 25.Eugene | 26.Frankfurt a.M. | 27.Genève |
| 28.Graz | 29.Helsinki | 30.I. de Margarita |
| 31.Kirkland | 32.Kobenhavn | 33.Köln |
| 34.Lander | 35.Leipzig | 36.Lille |
| 37.Lisboa | 38.Lisboa | 39.London |
| 40.London | 41.London | 42.London |
| 43.London | 44.London | 45.Luleå |
| 46.Lyon | 47.Madrid | 48.Madrid |
| 49.Madrid | 50.Mannheim | 51.Marseille |
| 52.México D.F. | 53.México D.F. | 54.México D.F. |
| 55.México D.F. | 56.México D.F. | 57.Montréal |
| 58.München | 59.Münster | 60.Nantes |
| 61.Nantes | 62.Oulu | 63.Paris |
| 64.Paris | 65.Portland | 66.Portland |
| 67.Reggio Emilia | 68.Reims | 69.Resende |

10. Go back to the report template;
11. If needed, add other bands to the report template, for example, **ColumnHeaderBand** and **ColumnFooterBand**.

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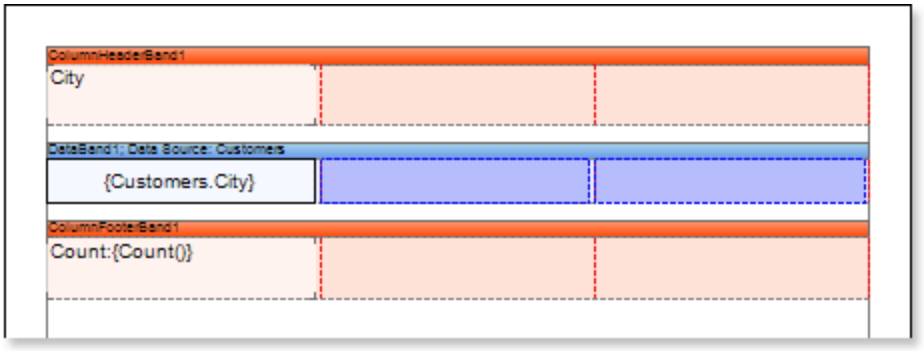
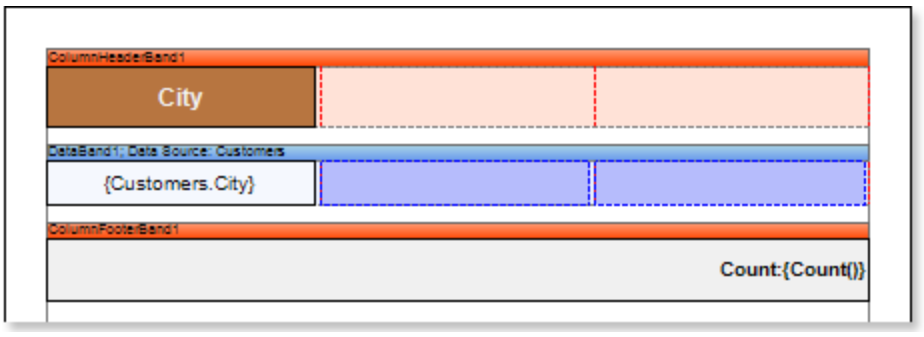
12. Edit these bands:
    12.1. Align them by height;
    12.2. Change values of properties, if required;
    12.3. Change the background of bands;
    12.4. Enable **Borders**, if required;
    12.5. Set the border color.
13. Put text components with expressions in the these bands. Where expression of the text component in the **ColumnHeaderBand** is the column name and the expression of the text component in the **ColumnFooterBand** is the data footer.




14. Edit **Text** and **TextBox** component:
    14.1. Drag and drop the text component in **ColumnHeaderBand** and **ColumnFooterBand**;
    14.2. Change parameters of the text font: size, type, color;
    14.3. Align the text component by width and height;
    14.4. Change the background of the text component;
    14.5. Align text in the text component;
    14.6. Change the value of properties of the text component. For example, set the **Word Wrap** property to **true**, if you need a text to be wrapped;
    14.7. Enable **Borders** for the text component, if required.
    14.8. Change the border color.




15. Click the **Preview** button or invoke the **Viewer**, pressing **F5** or clicking the **Preview** menu item. After rendering all references to data fields will be changed on data form specified fields. Data will be output in consecutive order from the database that was defined for this report. The amount of copies of the **DataBand** in the rendered report will be the same as the amount of data rows in the database. The picture below shows samples of reports with column headers.

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Down Then Across

| City | City | City |
|---|---|---|
| 1.Aachen | 22.Cowes | 43.London |
| 2.Albuquerque | 23.Cunewalde | 44.London |
| 3.Anchorage | 24.Elgin | 45.Luleå |
| 4.Århus | 25.Eugene | 46.Lyon |
| 5.Barcelona | 26.Frankfurt a.M. | 47.Madrid |
| 6.Barquisimeto | 27.Genève | 48.Madrid |
| 7.Bergamo | 28.Graz | 49.Madrid |
| 8.Berlin | 29.Helsinki | 50.Mannheim |
| 9.Bern | 30.I. de Margarita | 51.Marseille |
| 10.Boise | 31.Kirkland | 52.México D.F. |
| 11.Bräcke | 32.Kobenhavn | 53.México D.F. |
| 12.Brandenburg | 33.Köln | 54.México D.F. |
| 13.Bruxelles | 34.Lander | 55.México D.F. |
| 14.Buenos Aires | 35.Leipzig | 56.México D.F. |
| 15.Buenos Aires | 36.Lille | 57.Montréal |
| 16.Buenos Aires | 37.Lisboa | 58.München |
| 17.Butte | 38.Lisboa | 59.Münster |
| 18.Campinas | 39.London | 60.Nantes |
| 19.Caracas | 40.London | 61.Nantes |
| 20.Charleroi | 41.London | 62.Oulu |
| 21.Cork | 42.London | 63.Paris |

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Across Then Down

| City | City | City |
|---|---|---|
| 1.Aachen | 2.Albuquerque | 3.Anchorage |
| 4.Århus | 5.Barcelona | 6.Barquisimeto |
| 7.Bergamo | 8.Berlin | 9.Bern |
| 10.Boise | 11.Bräcke | 12.Brandenburg |
| 13.Bruxelles | 14.Buenos Aires | 15.Buenos Aires |
| 16.Buenos Aires | 17.Butte | 18.Campinas |
| 19.Caracas | 20.Charleroi | 21.Cork |
| 22.Cowes | 23.Cunewalde | 24.Elgin |
| 25.Eugene | 26.Frankfurt a.M. | 27.Genève |
| 28.Graz | 29.Helsinki | 30.I. de Margarita |
| 31.Kirkland | 32.Kobenhavn | 33.Köln |
| 34.Lander | 35.Leipzig | 36.Lille |
| 37.Lisboa | 38.Lisboa | 39.London |
| 40.London | 41.London | 42.London |
| 43.London | 44.London | 45.Luleå |
| 46.Lyon | 47.Madrid | 48.Madrid |
| 49.Madrid | 50.Mannheim | 51.Marseille |
| 52.México D.F. | 53.México D.F. | 54.México D.F. |
| 55.México D.F. | 56.México D.F. | 57.Montréal |
| 58.München | 59.Münster | 60.Nantes |
| 61.Nantes | 62.Oulu | 63.Paris |

## Adding styles

1. Go back to the report template;
2. Select **DataBand**;
3. Change values of **Even style** and **Odd style** properties. If values of these properties are not set, then select the **Edit Styles** in the list of values of these properties and, using **Style Designer**, create a new style. The picture below shows the **Style Designer**:

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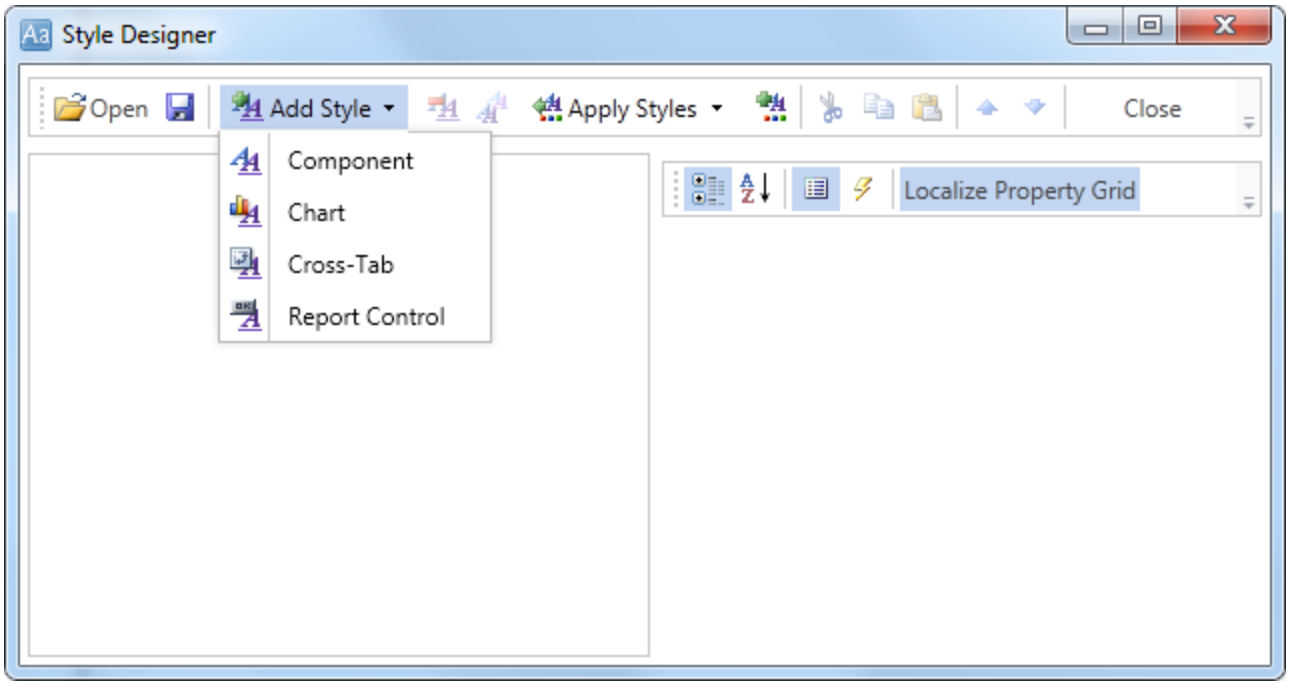


Click the **Add Style** button to start creating a style. Select **Component** from the drop down list. Set the **Brush.Color** property to change the background color of a row. The picture below shows a sample of the **Style Designer** with the list of values of the **Brush.Color** property:

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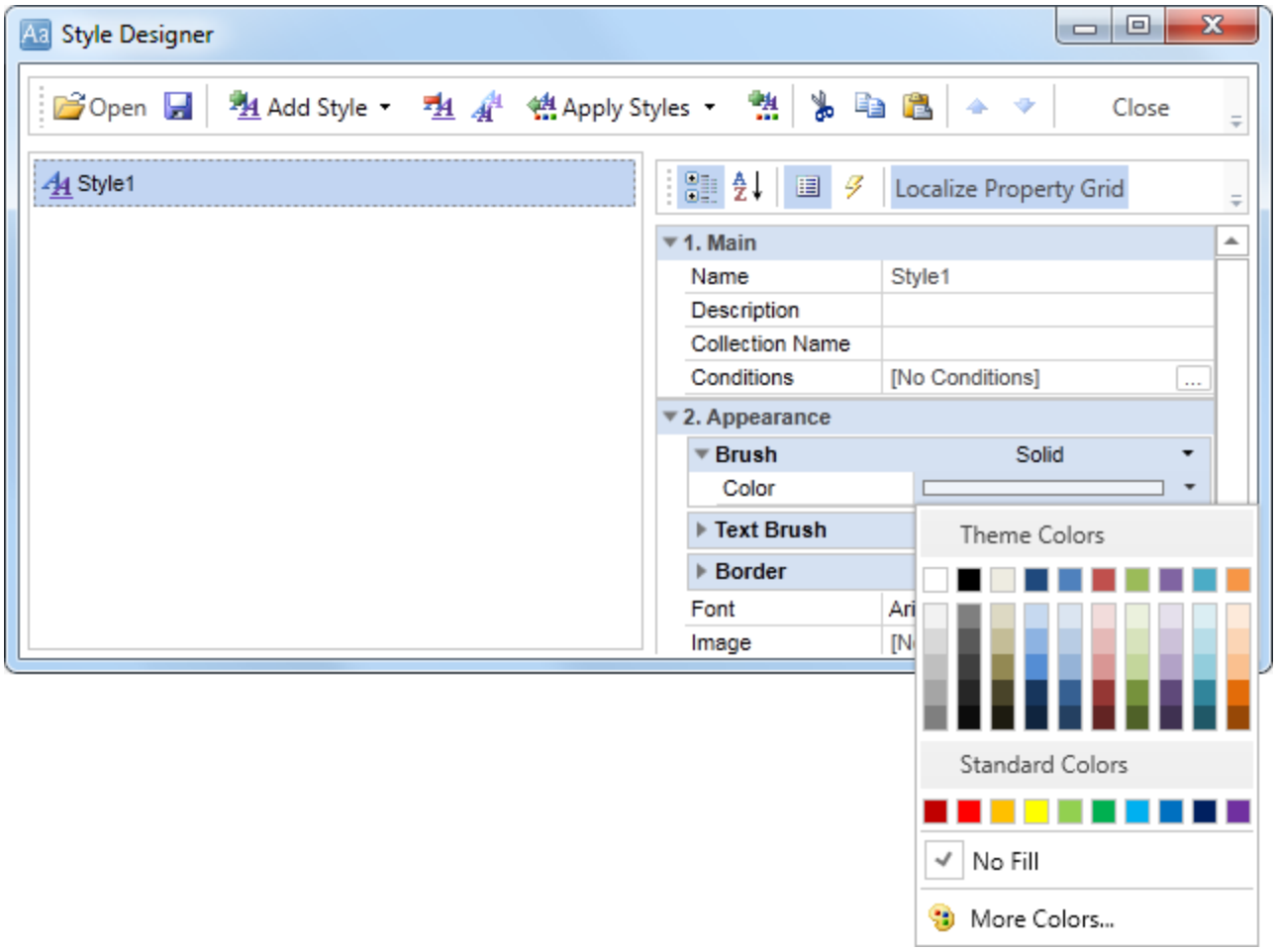


Click **Close**. Then in the list of **Even style** and **Odd style** properties a new value (a style of a list of odd and even rows).

4. To render the report, click the **Preview** button or invoke the **Viewer**, pressing **F5** or clicking the **Preview** menu item. The picture below shows a sample of a rendered report with columns on a page and alternative color of rows:

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Down Then Across

| City | City | City |
|---|---|---|
| 1.Aachen | 22.Cowes | 43.London |
| 2.Albuquerque | 23.Cunewalde | 44.London |
| 3.Anchorage | 24.Elgin | 45.Luleå |
| 4.Århus | 25.Eugene | 46.Lyon |
| 5.Barcelona | 26.Frankfurt a.M. | 47.Madrid |
| 6.Barquisimeto | 27.Genève | 48.Madrid |
| 7.Bergamo | 28.Graz | 49.Madrid |
| 8.Berlin | 29.Helsinki | 50.Mannheim |
| 9.Bern | 30.I. de Margarita | 51.Marseille |
| 10.Boise | 31.Kirkland | 52.México D.F. |
| 11.Bräcke | 32.Kobenhavn | 53.México D.F. |
| 12.Brandenburg | 33.Köln | 54.México D.F. |
| 13.Bruxelles | 34.Lander | 55.México D.F. |
| 14.Buenos Aires | 35.Leipzig | 56.México D.F. |
| 15.Buenos Aires | 36.Lille | 57.Montréal |
| 16.Buenos Aires | 37.Lisboa | 58.München |
| 17.Butte | 38.Lisboa | 59.Münster |
| 18.Campinas | 39.London | 60.Nantes |
| 19.Caracas | 40.London | 61.Nantes |
| 20.Charleroi | 41.London | 62.Oulu |
| 21.Cork | 42.London | 63.Paris |

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## 4.6 Report with Chart on Page

For better understanding this step-by-step instruction, please watch the video file.

Do the following steps to create a report with charts:

1. Run the designer;
2. Connect data:
   2.1. Create **New Connection**;
   2.2. Create **New Data Source**;

3. Put the **Chart** component on a page as seen on a picture below.

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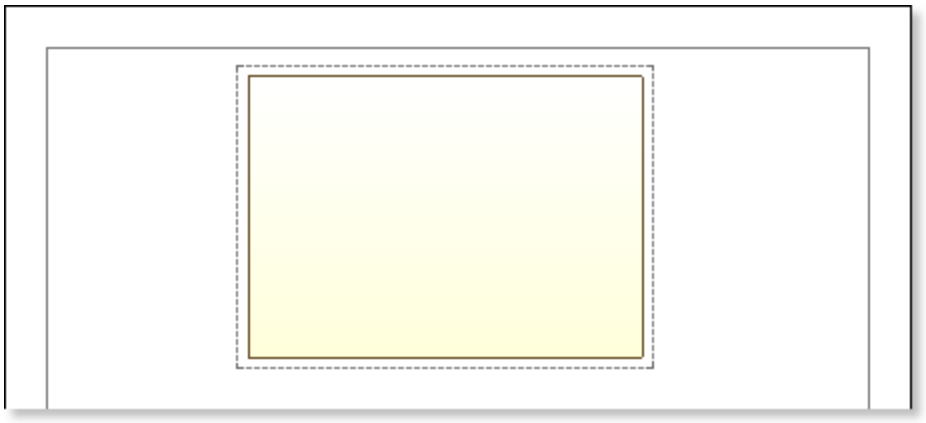
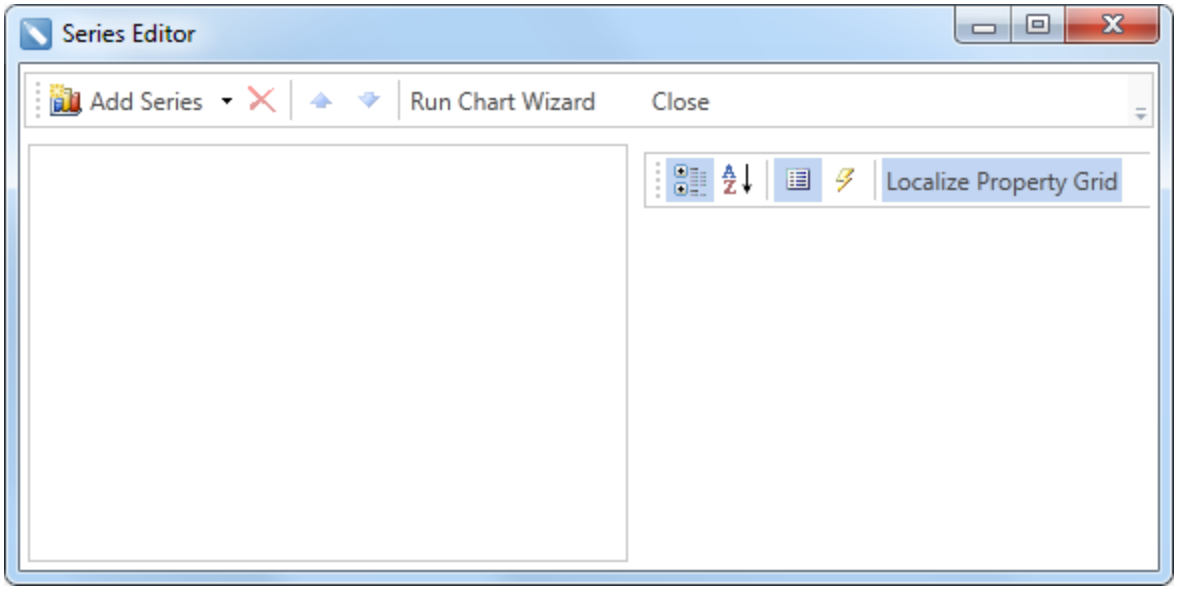


4. Edit the **Chart** component:
   4.1. Align it by width;
   4.2. Change properties of the **Chart** component. For example, set the **GrowToHeight** property to **true**, if it is required the Chart component be grown by height;
   4.3. Set **Borders**, if required, for the **Chart** component;
   4.4. Change the border color.
   4.5. Edit the chart area. For example, change the **Area.Brush.Color** property, if it is required to change the color of a chart area.

5. Change the type of a chart using the **Chart Type** property. For example, set it to **Clustered Column**:

6. Add series. Invoke the **Series Editor**, for example, by double-clicking the **Chart**.




Click the **Add Series** button to add a series and select the type of series in the menu. The picture below shows the menu of the **Add Series** button:

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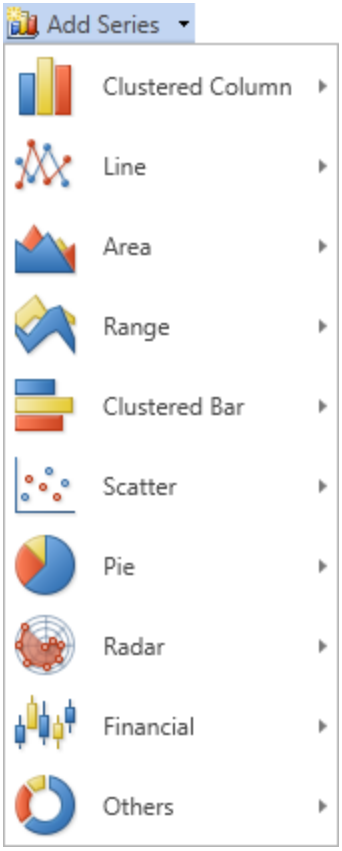


It should be noted that the type of number should match the type of chart, i.e. if the **Clustered Column** chart type, then the series must be of the **Clustered Column** type.

7. Setup chart series:
    7.1. Get the data for **Value** and for the **Argument** of series. There are three ways to get data for the series: set the column data from the dictionary, or specify an expression, or manually specify values for the series as a list, through the ',' separator. For example, create two rows, and manually define the values for these series as a list, with the ";" delimiter: arguments for **Series 1** - **A**; **B**, the values - **1**; **1.25**; for arguments **Series 2** - **A**; **B**, the value - **2**, **0.75**.
    7.2. Change the values of the series properties. For example, set the **Show Zeros** property to **false**, if it is necessary to hide zero values;
    7.3. Enable or disable **Series Labels**;
    7.4. Edit headers of rows: align, change the style, font, type of value, etc.;
    7.5. Change the design of series, by setting values of the following properties: **Border Color**, **Brush** , **Show Shadow**.

The picture below shows an example of a report template with the chart:

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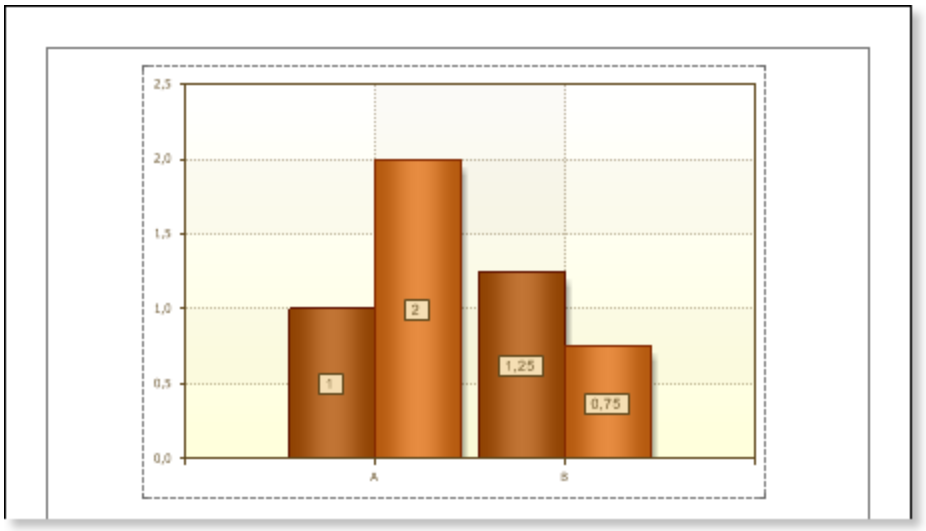
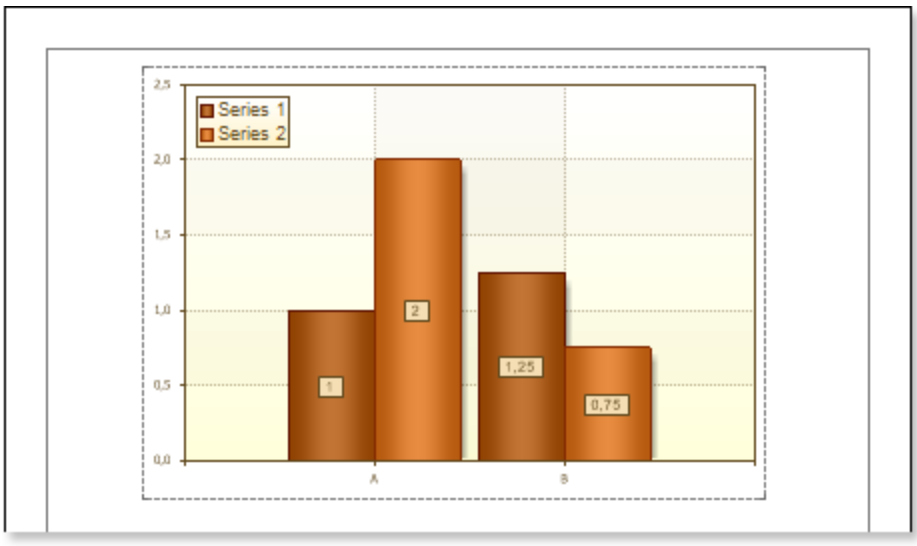



8. Edit **Legend**:
   8.1. Enable or disable the visibility of **Legends**. You can do it by setting the value of the **Legend.Visible** property to **true** or **false**, respectively;
   8.2. Align the legend horizontally and vertically;
   8.3. Change the legends design, etc.

The picture below shows an example of a report template with the chart displaying the legend:




9. Change the style of the chart, i.e. completely change the appearance of the chart:
   9.1. Change the **Style** property. Where the value of the property is a chart style;
   9.2. Set the **AllowApplyStyle** to the **true**. If the **AllowApplyStyle** property is set to **false**, then the report generator, when rendering, will take into account the values of the appearance of the series.

The picture below shows an example of a report template of the chart with a changed style:

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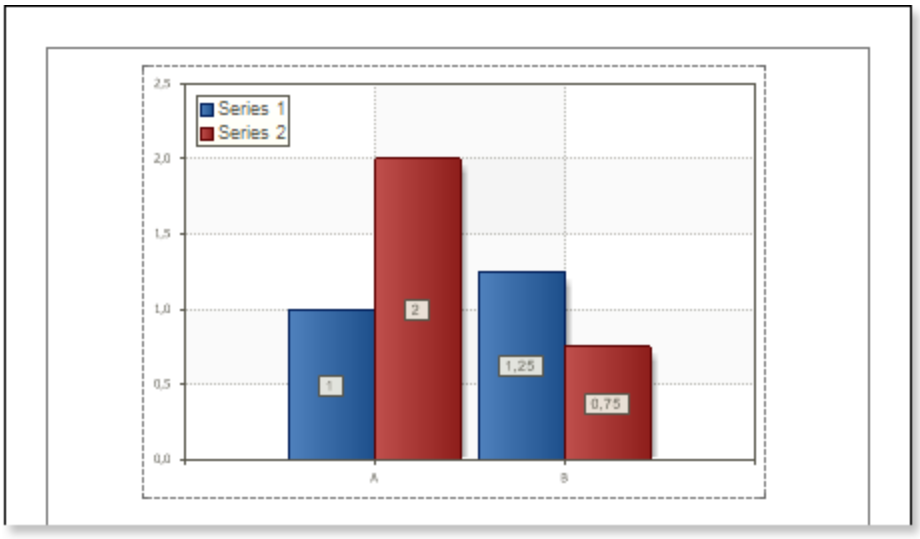
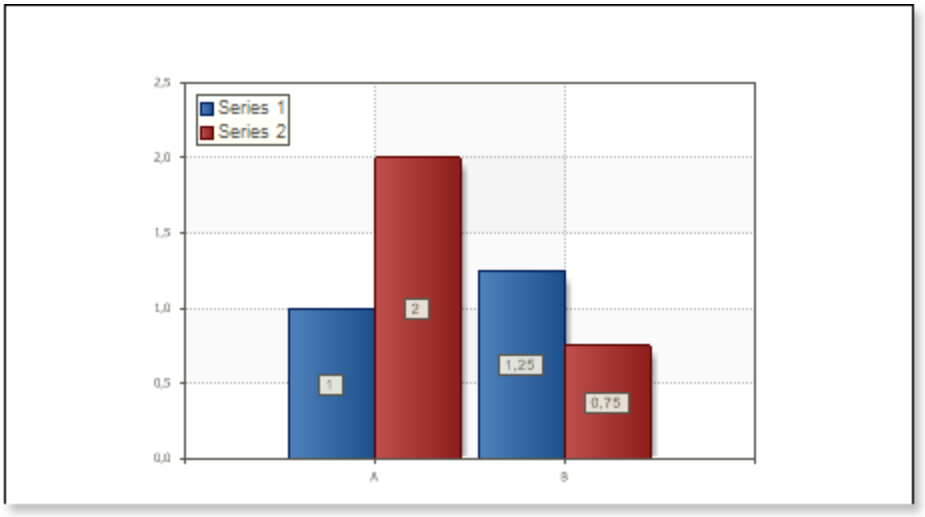



10. Click the **Preview** button or invoke the **Viewer**, pressing **F5** or clicking the **Preview** menu item. The picture below shows samples of reports with the chart:




## Adding styles

1. Go back to the report template;
2. Call the **Style Designer**;

The picture below shows the **Style Designer**:

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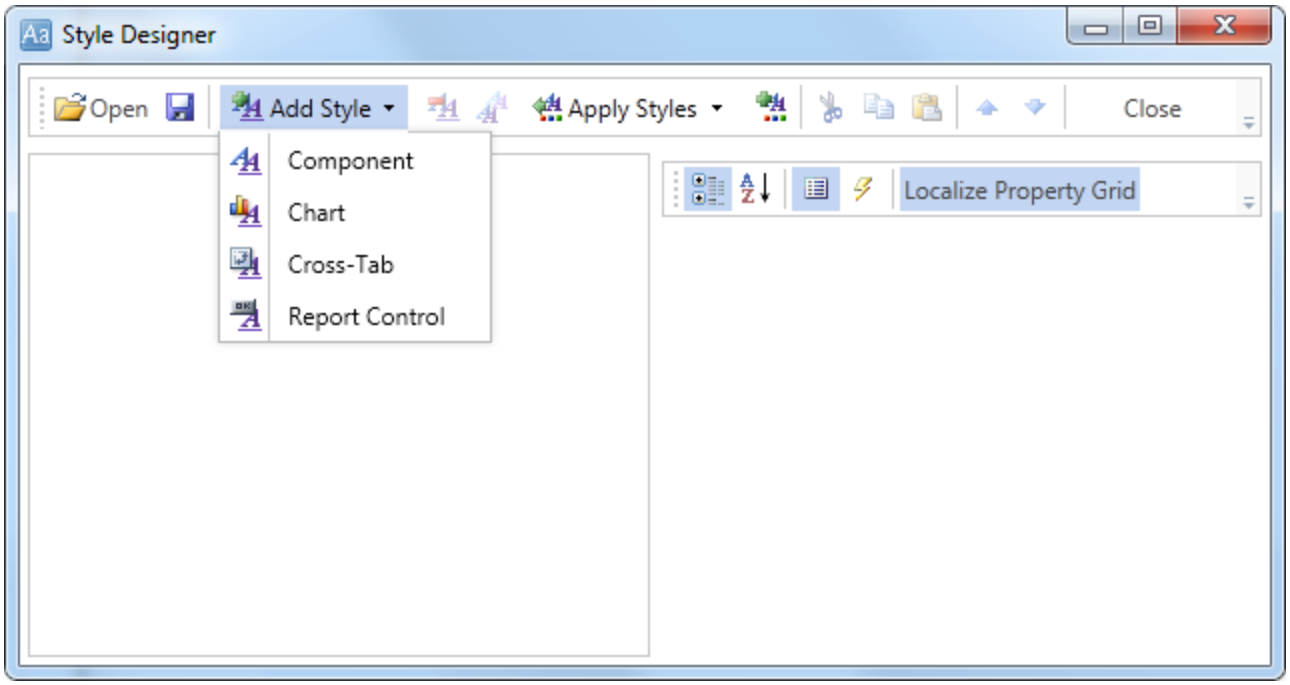
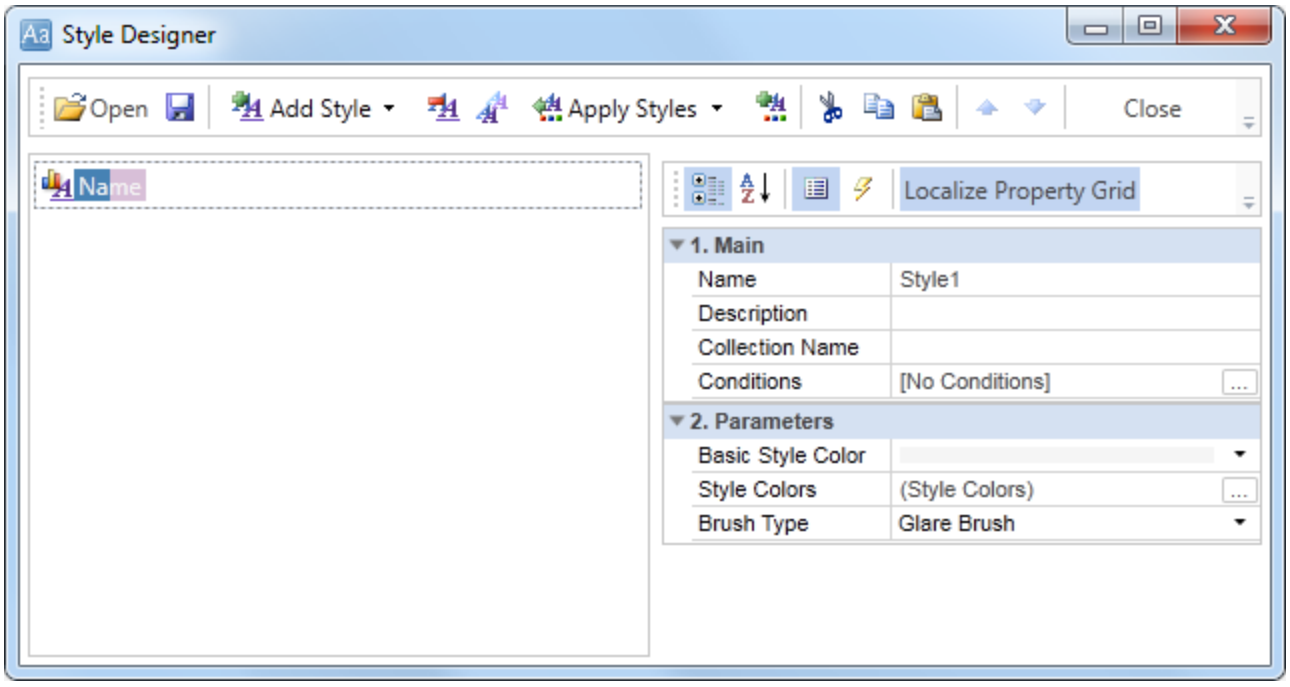



Click the **Add Style** button to start creating a style. Select **Chart** from the drop down list. Set the style using **Basic Color Style**, **Brush Type** and **Style Colors** group of properties.




Click **Close**. In the list of values of the **Style** property of the chart component a custom style will be displayed. In our case, the value is **Style for Chart**. Select this value;

3. Click the **Preview** button or invoke the **Viewer**, pressing **F5** or clicking the **Preview** menu item. The

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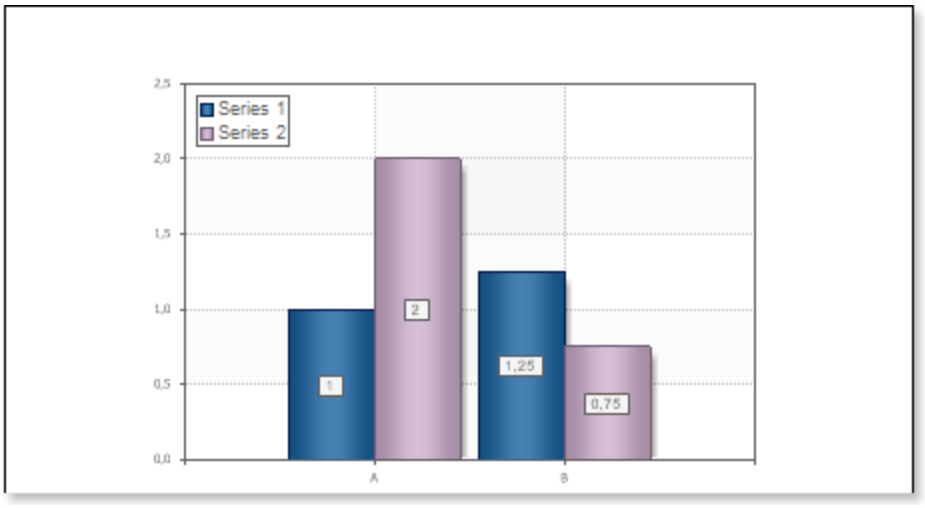
picture below shows samples of reports with the chart with a style applied:



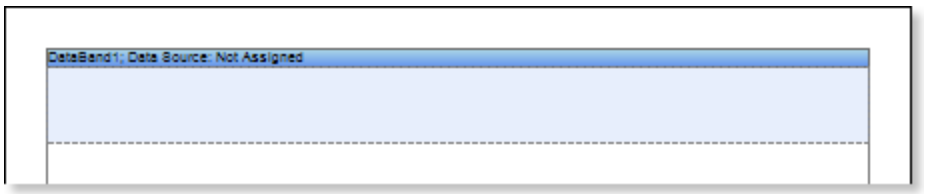

## 4.7 Report with Chart in Data Band

For better understanding this step-by-step instruction, please watch the video file.

Suppose a **Chart** component is placed on the page of the report, then, for a report, this component will be rendered as a page item. If the **Chart** component is placed in the **DataBand**, then, when rendering a report, this component will be rendered as part of the **DataBand**. Since the **Chart** component placed in the **DataBand**, is rendered as a part of the **DataBand**, and will be printed as many times as the **DataBand** will be output. An example of designing a report with a chart in the **DataBand** will be described below. In this example, the chart will graphically display the detailed data of the data source in the **DataBand**. Follow the steps below in order to render a report with the **Chart** in the **DataBand**:

1. Run the designer;
2. Connect data:
   2.1. Create **New Connection**;
   2.2. Create **New Data Source**;

3. Create a **Relation** between data sources. In this case, the **Parent Data Source** is the **Categories** data source, and the **Child Data Source** is the **Products** data source;
4. Put the **DataBand** on a report template page:




5. Edit **DataBand**:

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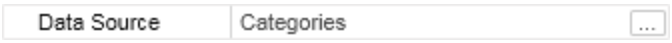
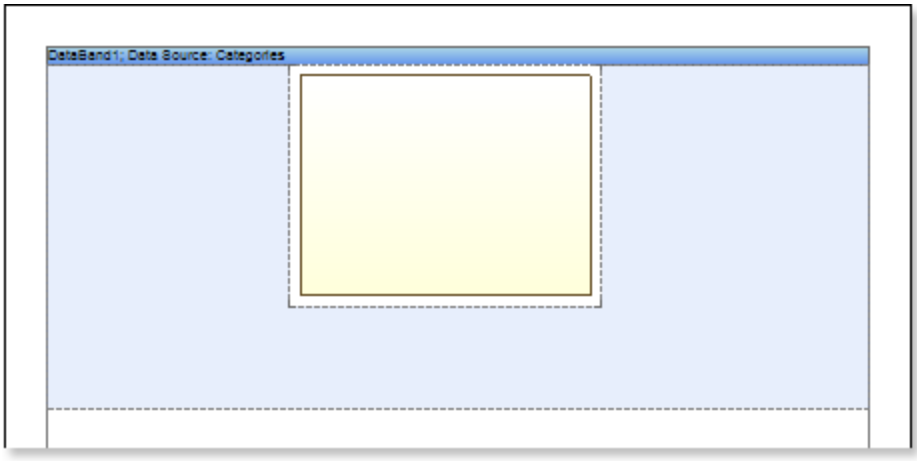
5.1. Align the **DataBand** by height;
5.2. Change values of band properties. For example, set the **Can Break** property to **true**, if you wish the data band to be broken;
5.3. Change the **DataBand** background;
5.4. Enable **Borders** for the **DataBand**, if required;
5.5. Change the border color.

6. Define the data source for the **DataBand** using the **Data Source** property:




7. Put the **Chart** component in the **DataBand** as seen on a picture below:




8. Edit the **Chart** component:
8.1. Align it by width;
8.2. Change properties of the **Chart** component. For example, set the **GrowToHeight** property to **true**, if it is required the Chart component be grown by height;
8.3. Set **Borders**, if required, for the **Chart** component;
8.4. Change the border color.
8.5. Edit the chart area. For example, change the **Area.Brush.Color** property, if it is required to change the color of a chart area.

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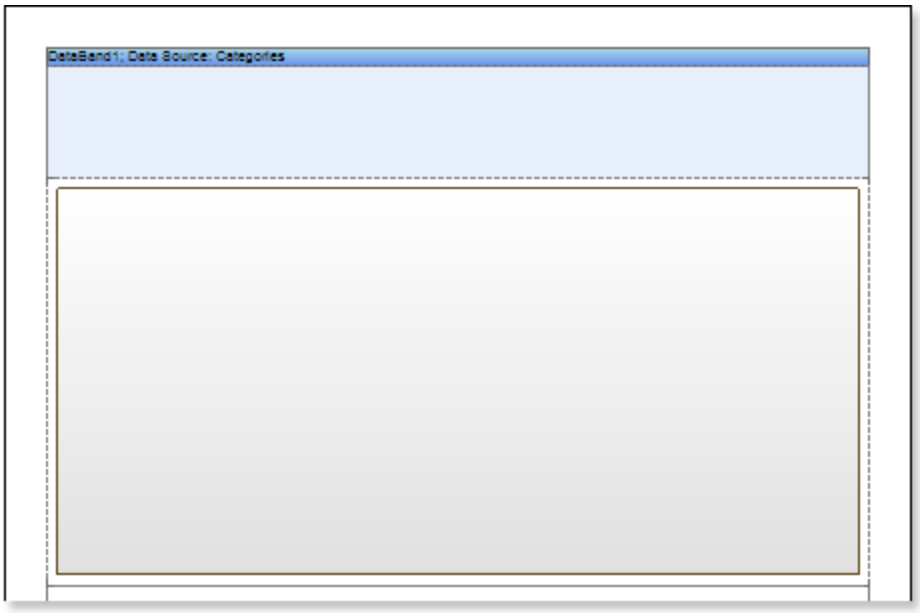


9. Change the type of a chart using the **Chart Type** property. For example, set it to **Clustered Column**:

10. Define the data source for the **Chart** component using the **Data Source** property

| Data Source | Products ... |
|---|---|

11. Define the relation between data sources, using the **DataRelation** property of the **Chart** component:

| Data Relation | Categories ... |
|---|---|

12. Add series. Invoke the **Series Editor**, for example, by double-clicking the **Chart**:

13. Setup chart series:

13.1. Get the data for **Value** and for the **Argument** of series. There are three ways to get data for the series: set the column data from the dictionary, or specify an expression, or manually specify values for the series as a list, through the ',' separator. For example, create a series and specify columns from the dictionary: define the **Products.ProductName** for the **Argument** and **Products.UnitPrice** for the **Value**;

13.2. Change the values of the series properties. For example, set the **Show Zeros** property to **false**, if it is necessary to hide zero values;

13.3. Enable or disable **Series Labels**;

13.4. Edit headers of rows: align, change the style, font, type of value, etc.;

13.5. Change the design of series, by setting values of the following properties: **Border Color**, **Brush**, **Show Shadow**.

The picture below shows an example of a report template with the chart:

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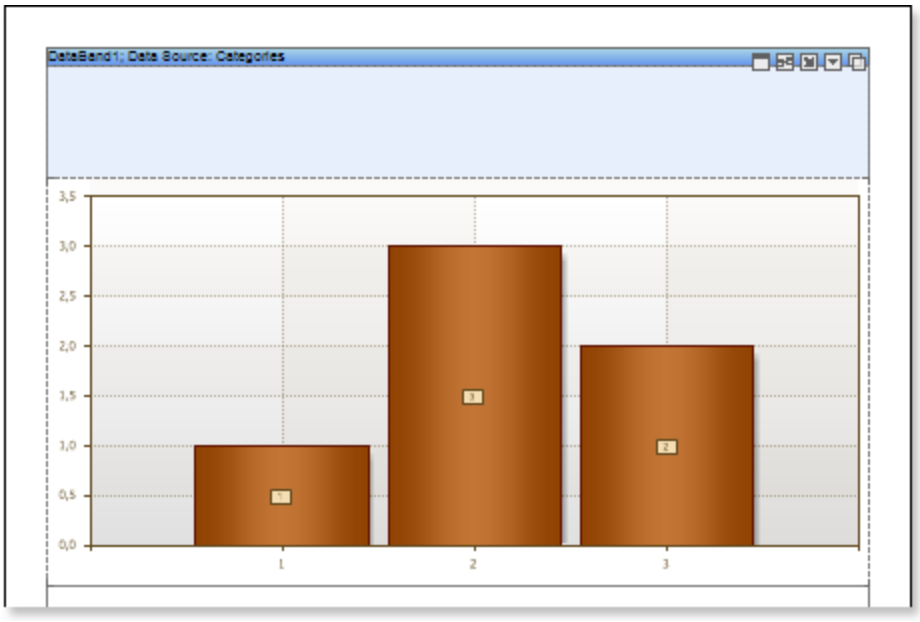
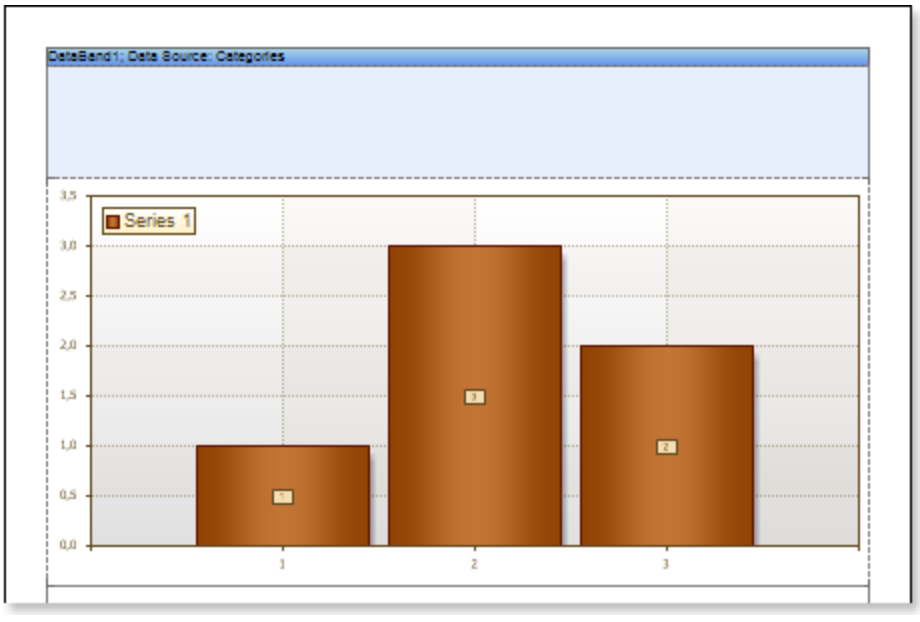



14. Edit **Legend**:
    14.1. Enable or disable the visibility of **Legends**. You can do it by setting the value of the **Legend.Visible** property to **true** or **false**, respectively;
    14.2. Align the legend horizontally and vertically;
    14.3. Change the legends design, etc.

The picture below shows an example of a report template with the chart displaying the legend:




15. Change the style of the chart, i.e. completely change the appearance of the chart:
    15.1. Change the **Style** property. Where the value of the property is a chart style;
    15.2. Set the **AllowApplyStyle** to the **true**. If the **AllowApplyStyle** property is set to **false**, then the report generator, when rendering, will take into account the values of the appearance of the series.

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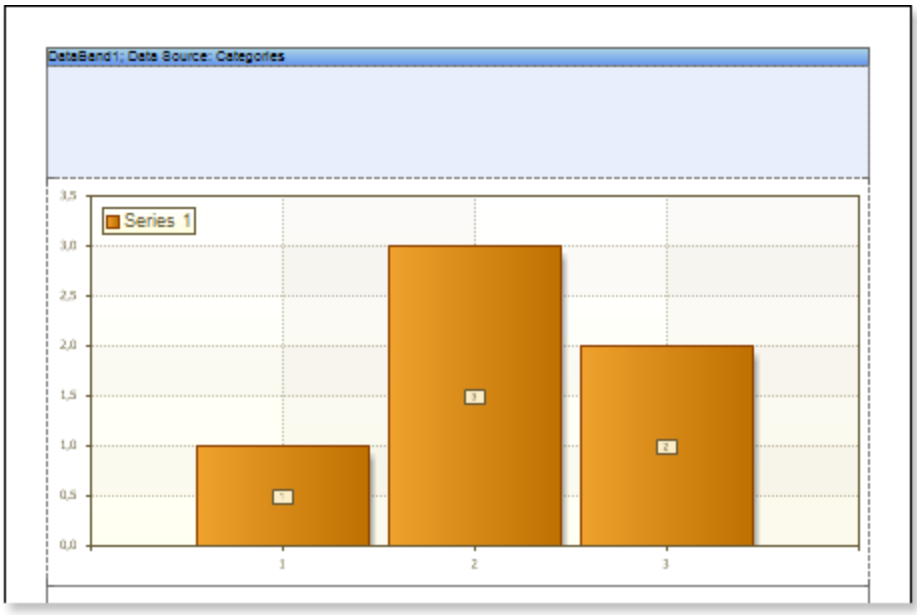
The picture below shows an example of a report template of the chart with a changed style:




16. Put text components with an expression in the **DataBand**. Where the expression is a reference to the data field. For example, put a text component with the expression: **{Categories.CategoryName}**;
17. Edit **Text** and **TextBox** component:
    17.1. Drag and drop the text component in the **DataBand**;
    17.2. Change parameters of the text font: size, type, color;
    17.3. Align the text component by width and height;
    17.4. Change the background of the text component;
    17.5. Align text in the text component;
    17.6. Change the value of properties of the text component. For example, set the **Word Wrap** property to **true**, if you need a text to be wrapped;
    17.7. Enable **Borders** for the text component, if required.
    17.8. Change the border color.

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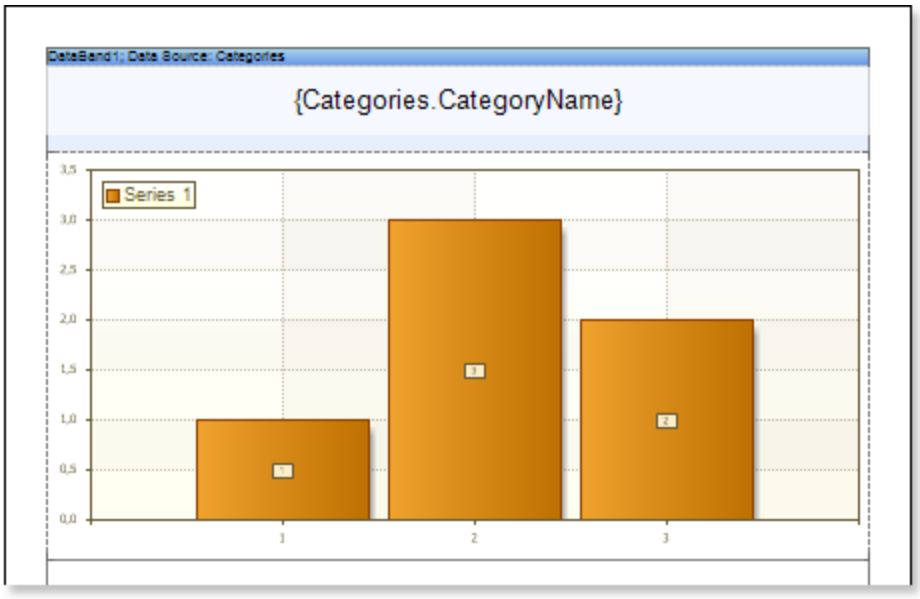


18. Click the **Preview** button or invoke the **Viewer**, pressing **F5** or clicking the **Preview** menu item. The picture below shows a sample of the report with the chart in the **DataBand**:

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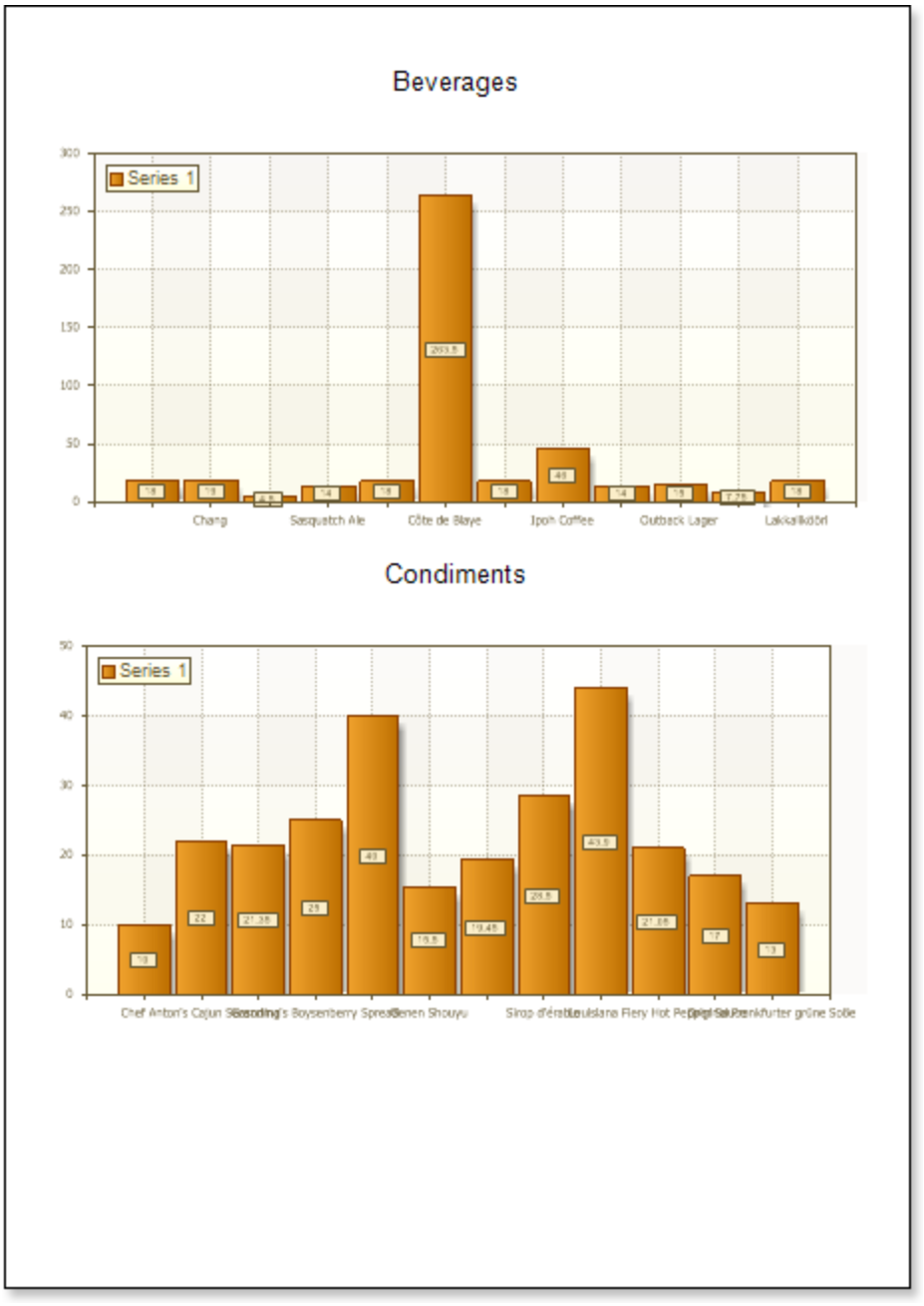
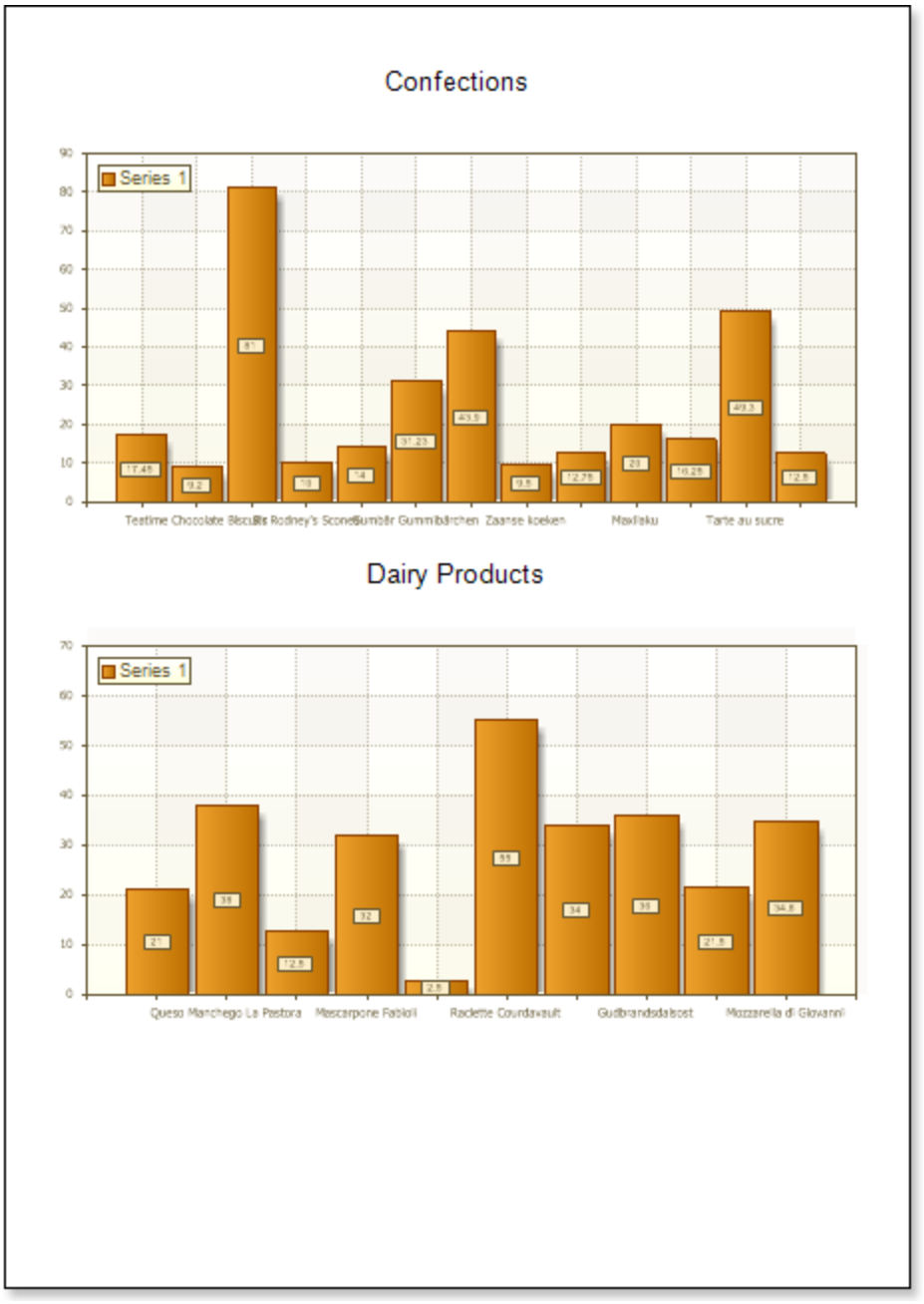

Beverages
Series 1
300
250
200
150
100
50
0
Chang
Sasquatch Ale
Côte de Blaye
Ipoh Coffee
Outback Lager
Lakkalikööri
Condiments
Series 1
50
40
30
20
10
0
Chef Anton's Cajun Seasoning
Louisiana Fiery Hot Pepper Sauce
Frankfurter grüne Soße




## Adding styles

1. Go back to the report template;
2. Call the **Style Designer**;

The picture below shows the **Style Designer**:

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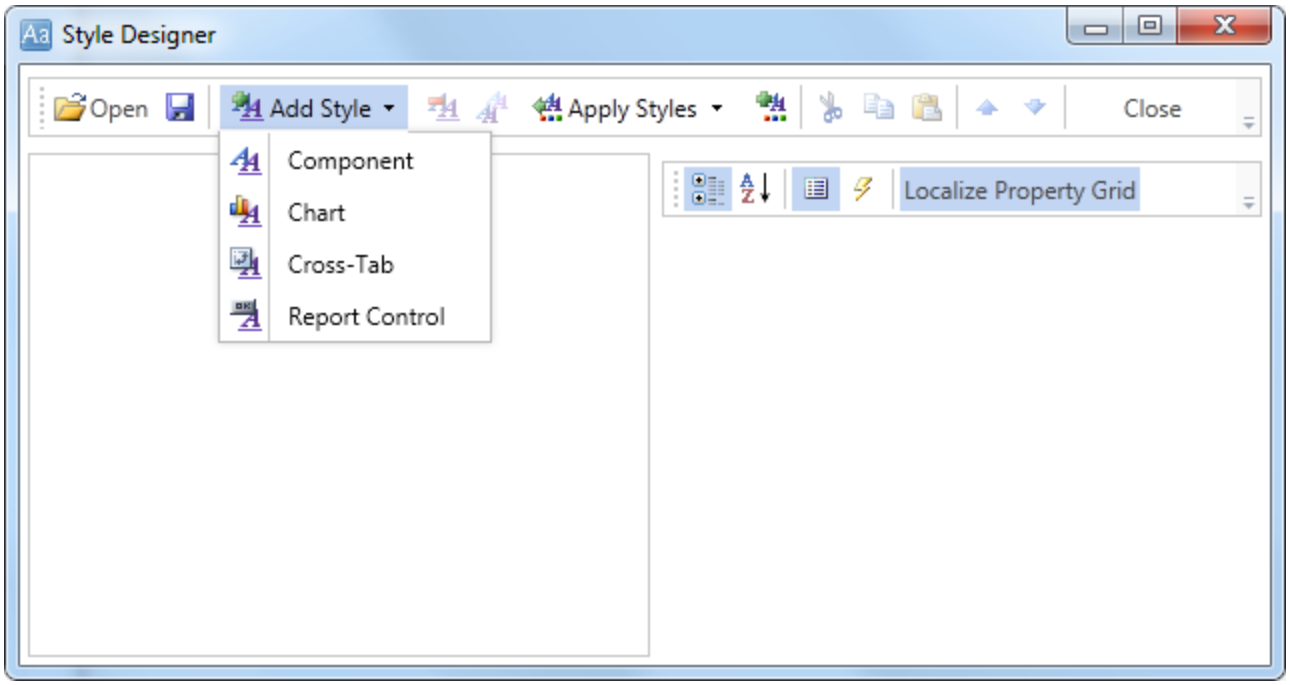
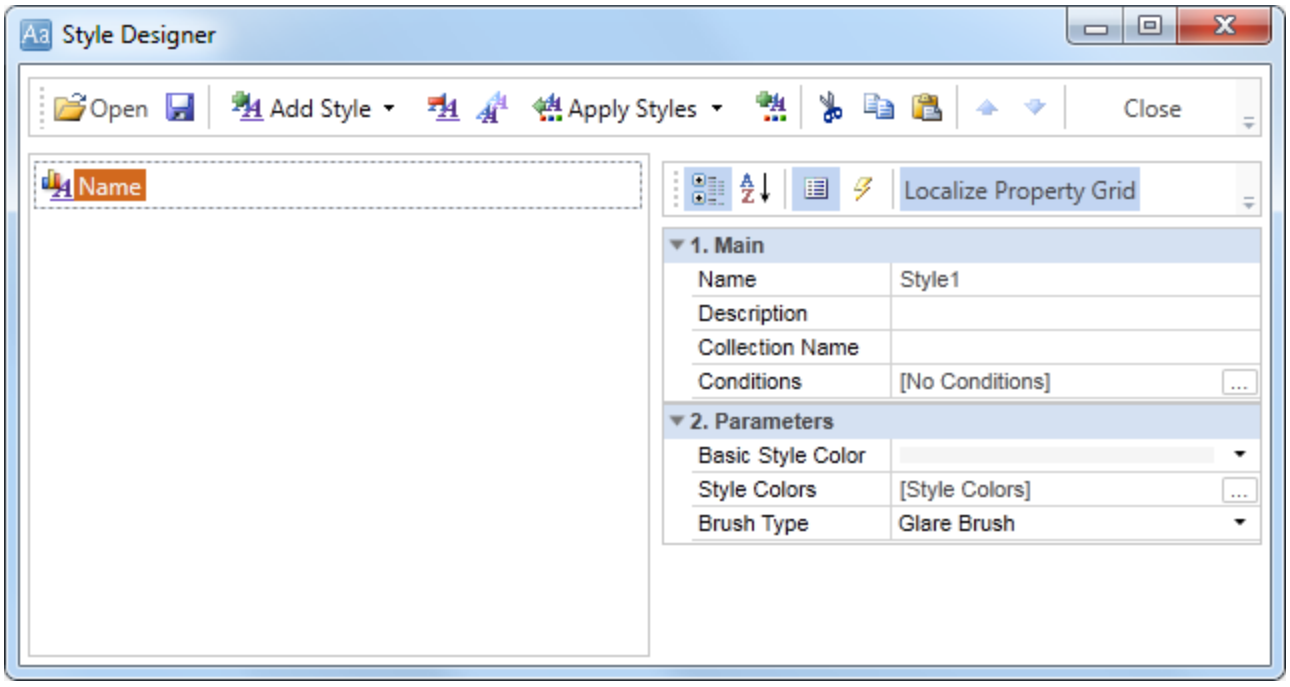



Click the **Add Style** button to start creating a style. Select **Chart** from the drop down list. Set the style using **Basic Color Style**, **Brush Type** and **Style Colors** group of properties.




Click **Close**. In the list of values of the **Style** property of the chart component a custom style will be displayed. In our case, the value is **Style for Chart**. Select this value;

3. Click the **Preview** button or invoke the **Viewer**, pressing **F5** or clicking the **Preview** menu item. The

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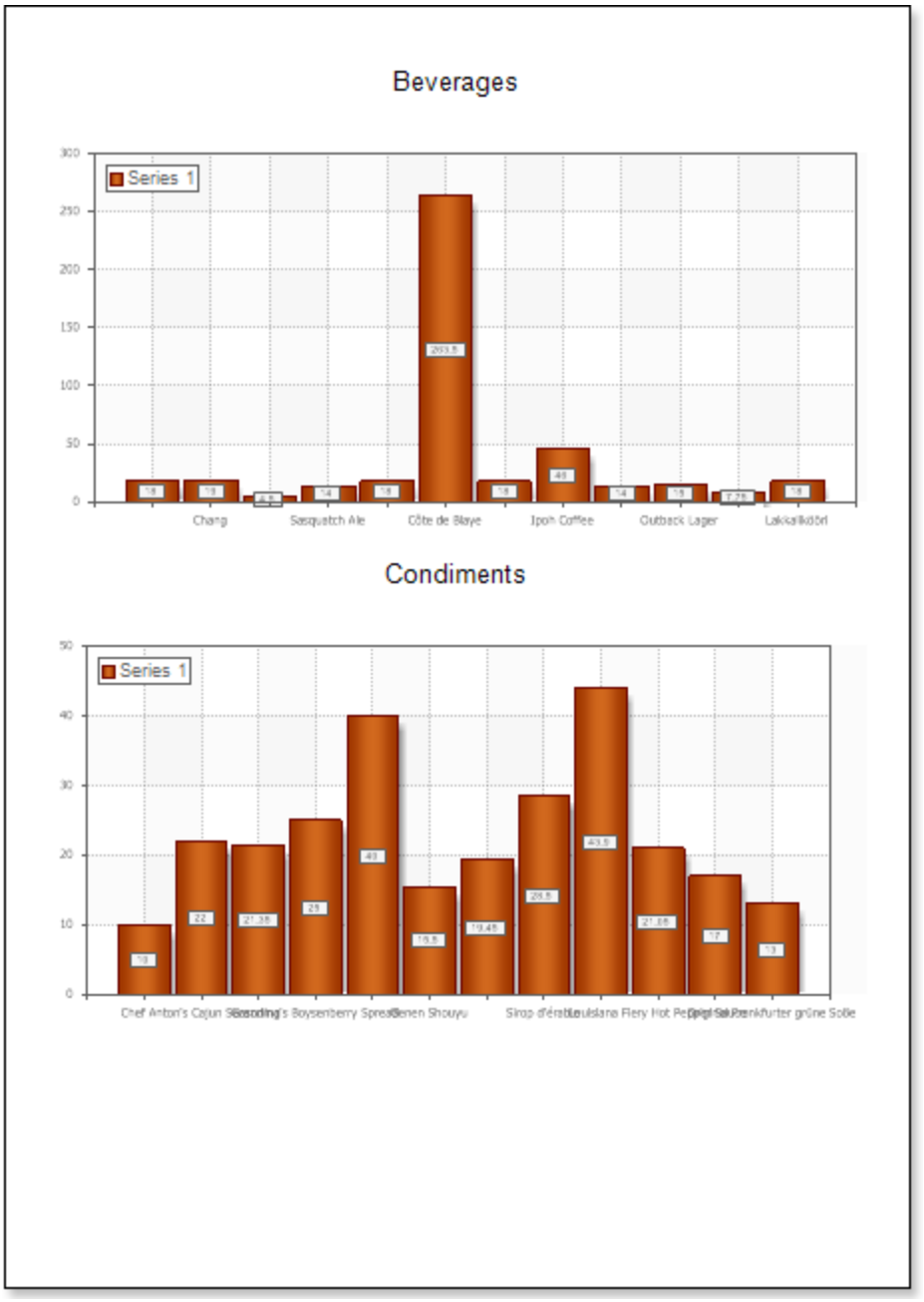
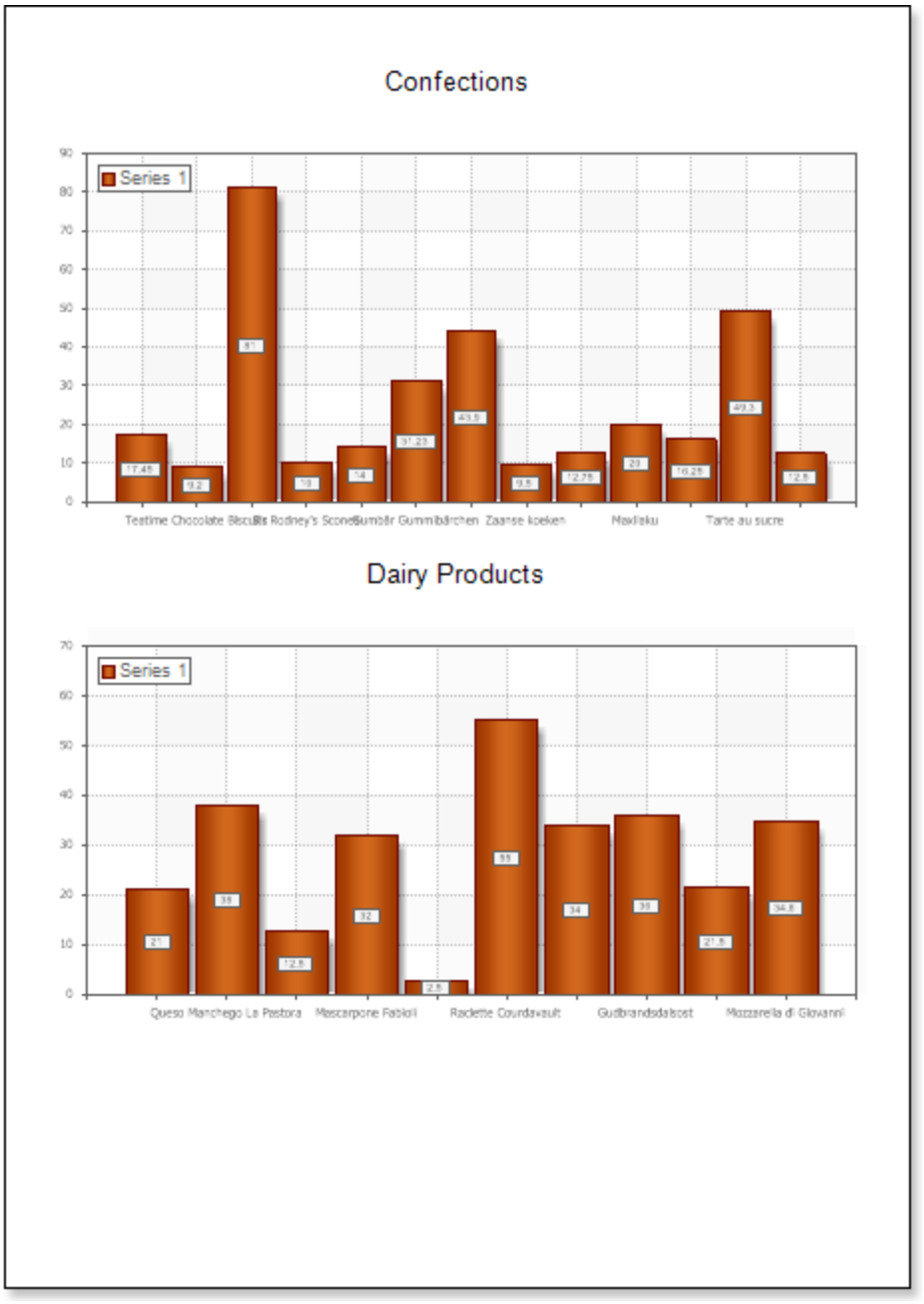
picture below shows samples of reports with the chart with a style applied:






## 4.8 Report with Cross-Tab on Page

For better understanding this step-by-step instruction, please watch the video file.

Do the following steps to create a report with the cross table:

1. Run the designer;
2. Connect data:

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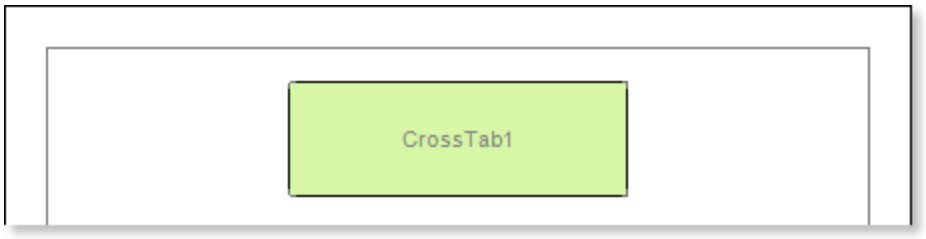
2.1. Create **New Connection**;
2.2. Create **New Data Source**;

3. Put the **Cross-Tab** component on a page of the report template.




4. Edit the **Cross-Tab** component:
4.1. For example, set the **GrowToHeight** property to **true**, to allow the **Cross-Tab** component to grow by height;

5. Define the data source for the **Cross-Tab** component of the band, for example, using the **Data Source** property:

6. Invoke the **Cross-Tab Designer**, for example, clicking the **Design...** item of the context menu of the cross table component. The picture below shows the **Cross-Tab Designer** window:

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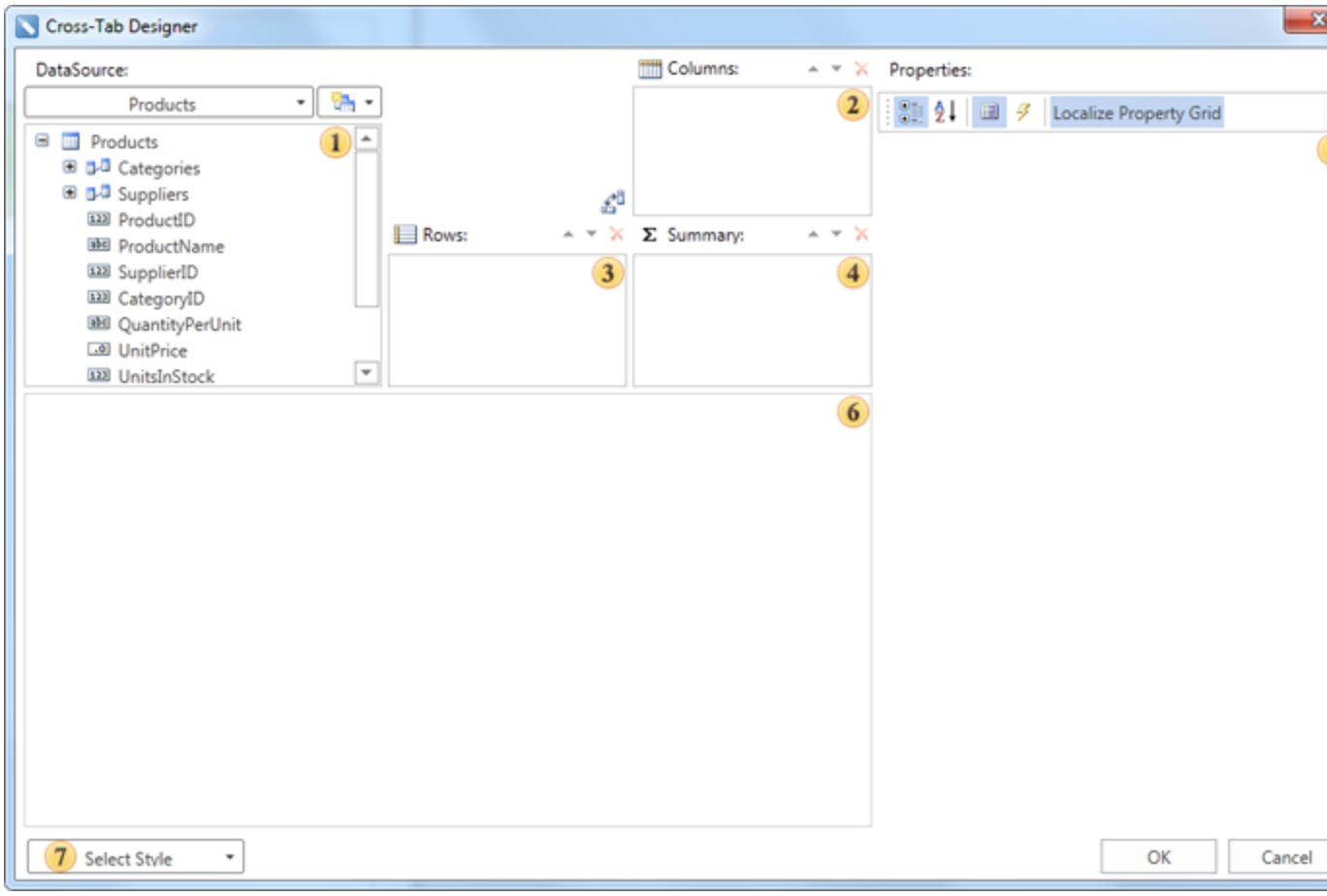


1 The **DataSource** field shows the data columns of the selected data source;
2 The **Columns** field shows a list of columns of the data source by what the columns in the cross table will be created;
3 The **Rows** field shows a list of rows of the data source by what the rows in the cross table will be created;
4 The **Summary** field shows a list of columns of the data source by what the summary in the cross table will be created;
5 The **Properties** field shows the properties of the selected item of the cross table;
6 The **Cross-Tab Cells** field shows cells of the cross table;
7 The **Select Style** button. When clicking the drop down list of styles for the cross table appear.

7. Do the following steps in the **Cross-Tab Designer**:

7.1. Add the data column from the 1 **DataSource** to the 2 **Columns** field of the cross-tab. For example, add the **CategoryID** data column to the **Columns** field of the cross-tab. Hence one entry from this data column will correspond to one column in the rendered cross-table, i.e. the number of entries in this data column will be equal to the number of columns in the cross-table;

7.2. Add a column of the data source from 1 the **DataSource** field to 3 the **Rows** of the cross-table. For example, add the **ProductName** data column to the **Rows** field of the cross-table, and then one entry from this data column will correspond to one row in the rendered cross-table, i.e. the number of entries in this data column will be equal to the number of rows in the cross-table;

7.3. Add a data column from 1 the **DataSource** field to the 4 **Summary** field of the cross-table. For example, add the **UnitInStock** data column to the **Summary** field of the cross-table, i.e. all

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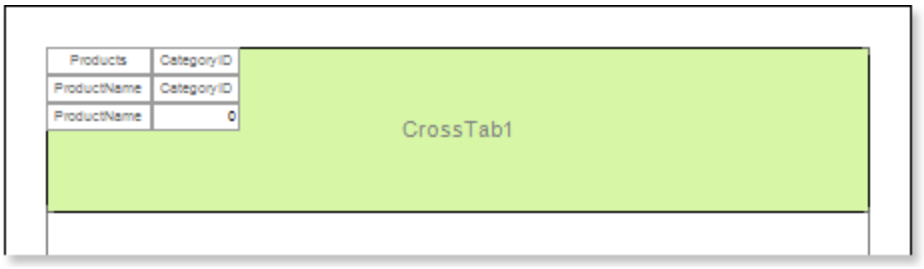
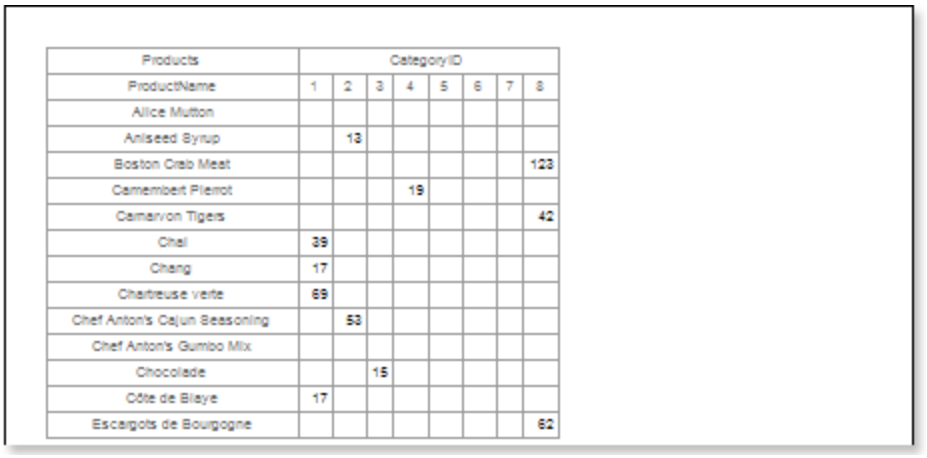
entries in this data column will be summary entries in the cross-table;

8. Press the **OK** button in order to save your changes and go back to the report template with cross-table.

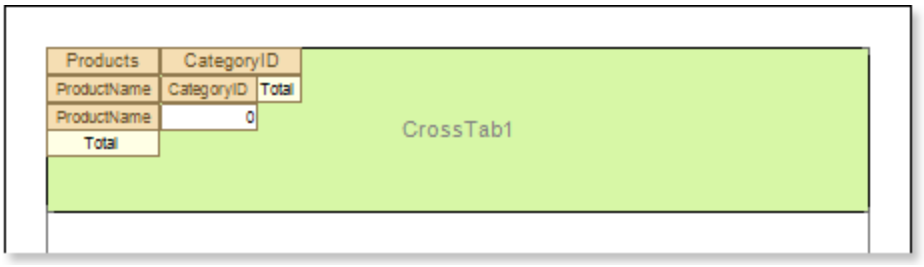



9. Click the **Preview** button or invoke the **Viewer**, pressing **F5** or clicking the **Preview** menu item. The picture below shows a rendered cross-tab report:



| Products | CategoryID | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| ProductName | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Alice Mutton | | | | | | | | |
| Aniseed Syrup | | 13 | | | | | | |
| Boston Crab Meat | | | | | | | | 123 |
| Camembert Pierrot | | | | 19 | | | | |
| Carnarvon Tigers | | | | | | | | 42 |
| Chai | 39 | | | | | | | |
| Chang | 17 | | | | | | | |
| Chartreuse verte | 69 | | | | | | | |
| Chef Anton's Cajun Seasoning | | 53 | | | | | | |
| Chef Anton's Gumbo Mix | | | | | | | | |
| Chocolade | | | 15 | | | | | |
| Côte de Blaye | 17 | | | | | | | |
| Escargots de Bourgogne | | | | | | | | 62 |

10. Go back to the report template;
11. Edit cells in the report template:
    11.1. Set the font settings: type, style, size;
    11.2. Set the background of cells;
    11.3. Set the **Word Wrap** property to **true** if it is necessary to wrap text;
    11.4. Switch on/off **Borders**;
    11.5. Set the border color;
    11.6. Set the background of cells etc.

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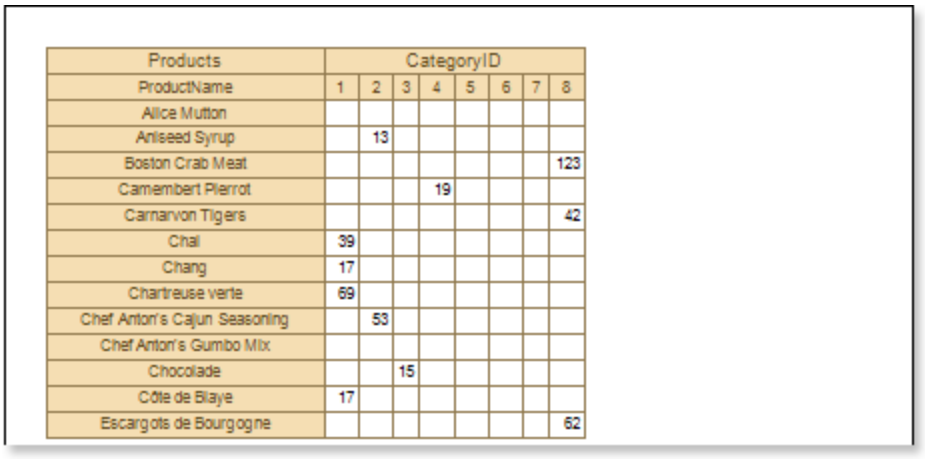
12. Click the **Preview** button or invoke the **Viewer**, pressing **F5** or clicking the **Preview** menu item. The picture below shows a report of the rendered report with the cross table after editing report template cells:

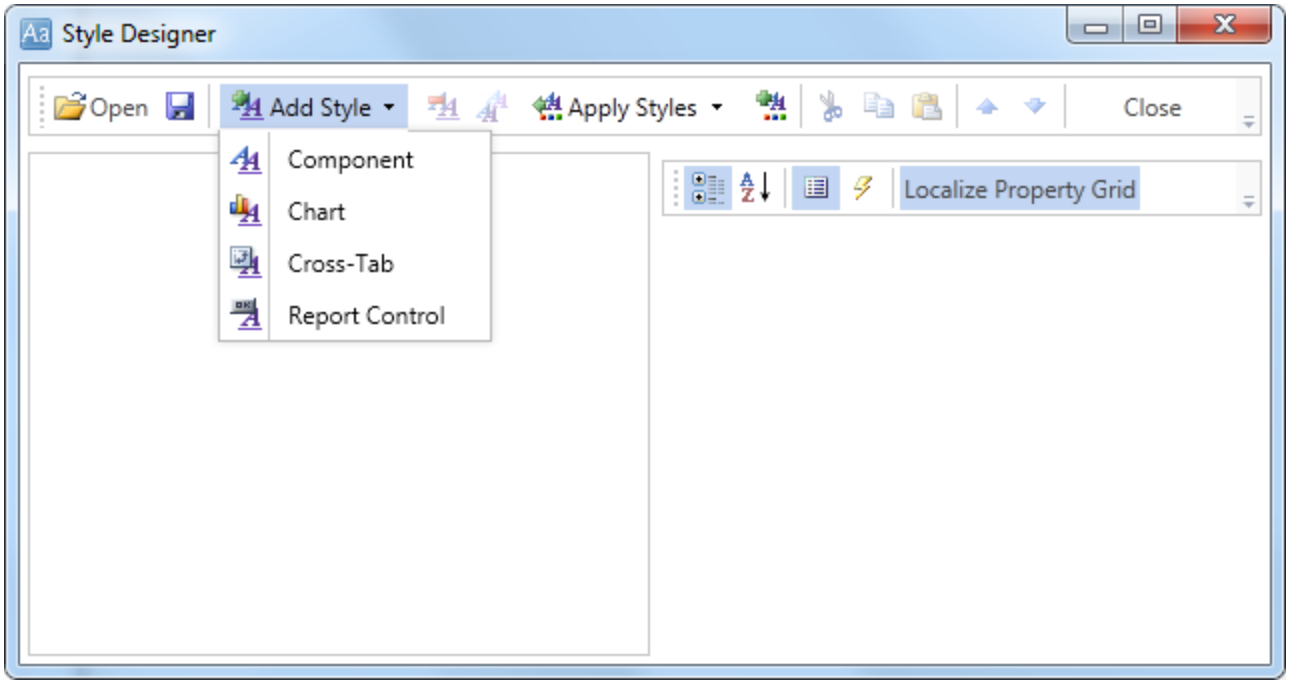


| Products | CategoryID | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| ProductName | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Alice Mutton | | | | | | | | |
| Aniseed Syrup | | 13 | | | | | | |
| Boston Crab Meat | | | | | | | | 123 |
| Camembert Pierrot | | | | 19 | | | | |
| Carnarvon Tigers | | | | | | | | 42 |
| Chai | 39 | | | | | | | |
| Chang | 17 | | | | | | | |
| Chartreuse verte | 69 | | | | | | | |
| Chef Anton's Cajun Seasoning | | 53 | | | | | | |
| Chef Anton's Gumbo Mix | | | | | | | | |
| Chocolade | | | 15 | | | | | |
| Côte de Blaye | 17 | | | | | | | |
| Escargots de Bourgogne | | | | | | | | 62 |

## Adding styles

1. Go back to the report template;
2. Call the **Style Designer**;

The picture below shows the **Style Designer**:




Click the **Add Style** button to start creating a style. Select **Cross-Tab** from the drop down list. To create the custom style, set the **Color** property. The picture below shows a sample of the **Style Designer** with created custom style**:**

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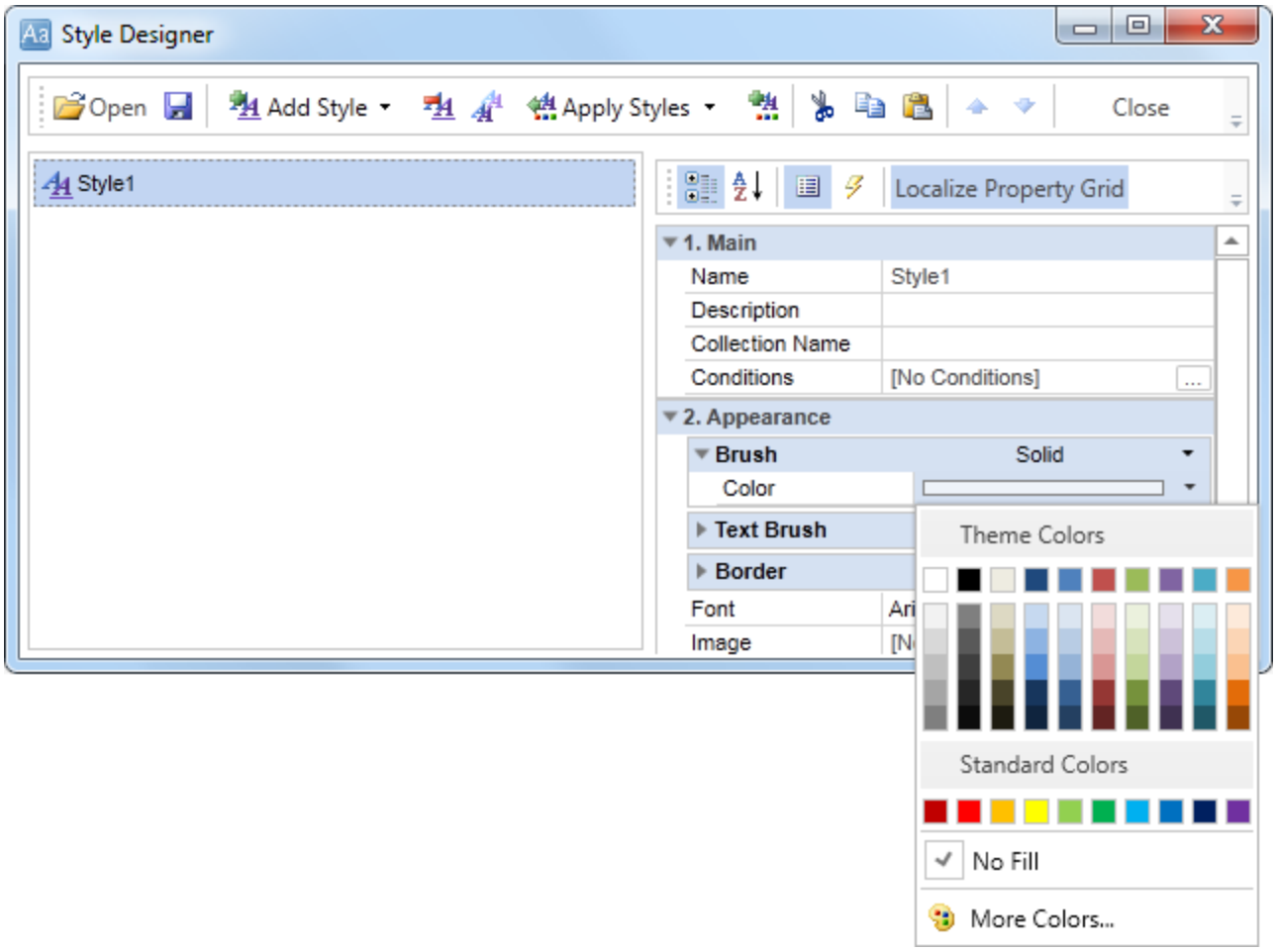
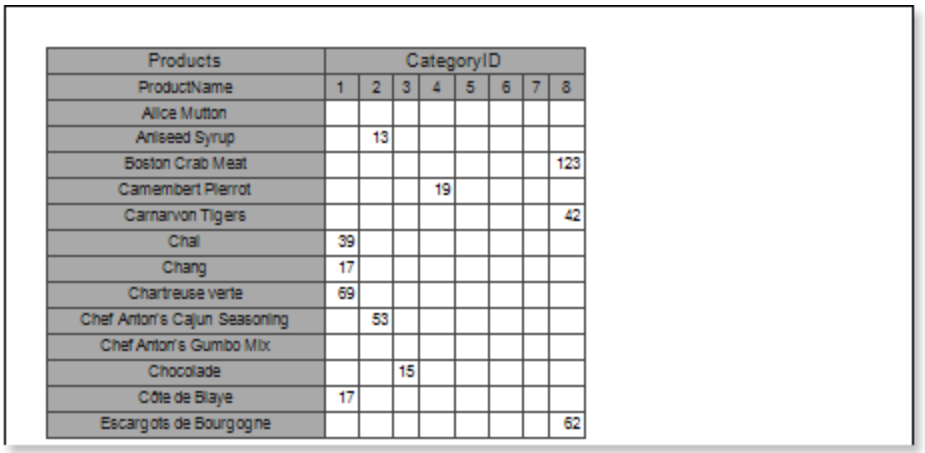



Click **Close**. In the list of values of the **Select Style** button in the cross-table editor, a custom style will be displayed. In our case, the name is **Style for Cross-Tab**. Select this value;

3. Click the **Preview** button or invoke the **Viewer**, pressing **F5** or clicking the **Preview** menu item. The picture below shows a sample of the rendered cross-table report using the custom style:



| Products | CategoryID | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| ProductName | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Alice Mutton | | | | | | | | |
| Aniseed Syrup | | 13 | | | | | | |
| Boston Crab Meat | | | | | | | | 123 |
| Camembert Pierrot | | | | 19 | | | | |
| Carnarvon Tigers | | | | | | | | 42 |
| Chai | 39 | | | | | | | |
| Chang | 17 | | | | | | | |
| Chartreuse verte | 69 | | | | | | | |
| Chef Anton's Cajun Seasoning | | 53 | | | | | | |
| Chef Anton's Gumbo Mix | | | | | | | | |
| Chocolade | | | 15 | | | | | |
| Côte de Blaye | 17 | | | | | | | |
| Escargots de Bourgogne | | | | | | | | 62 |

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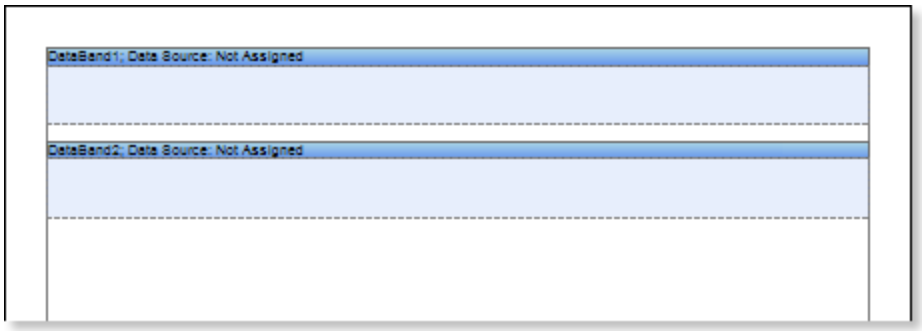
## 4.9 Cross-Tab Report in Data Band

For better understanding this step-by-step instruction, please watch the video file.

If the **Cross-Tab** component is placed in the **DataBand**, then when designing a report, this component will be constructed as part of the **DataBand**. Because the **Cross-Tab** component placed in the **DataBand** is designed as an element of the **DataBand**, then, when designing a report, this component will be printed as many times as the **DataBand**. Consider an example of building a report with the **Cross-Tab** in the **DataBand**. In this example, **Cross-Tab** will display the detailed entries in the **Master-Detail** report. Do the following steps in order to build a report with the **Cross-Tab** in the **DataBand**:

1. Run the designer;
2. Connect data:
    2.1. Create **New Connection**;
    2.2. Create **New Data Source**;

3. Create the **Relation** between data sources. If the **Relation** is not created and/or the **Relation** property will be not filled for the **Detail** data source, then, for each **Master** entries, all **Detail** entries will not be output;
4. Put two **DataBands** on a page of a report template;




5. Edit **DataBand1** and **DataBand2**:
    5.1 Align the **DataBands** vertically;
    5.2 Change the value of the required properties. For example, for the **DataBand1**, which is a **Master** component in the **Master-Detail** report, set the **Print If Detail Empty** property to **true**, if you want the **Master** entries be printed in any case, even if the **Detail** entries are not available. And for the **DataBand2**, which is a **Detail** component in the **Master-Detail** report, set the **CanShrink** property to **true**, if it is necessary for this band to be shrunk;
    5.3 Change the background color of the **DataBand**;
    5.4 If necessary, set **Borders** of the **DataBand**;

6. Specify data sources for **DataBands**, as well as assign the **Master** component. In our example, the **Master** component is the upper **DataBand1**, and hence indicate the **DataBand1** in the **Master Component** tab of the **Data Setup** dialog box of the lower **DataBand2** as the **Master** component;
7. Fill in the **Data Relation** property of the **DataBand**, which is the **Detail** component, in our case, this

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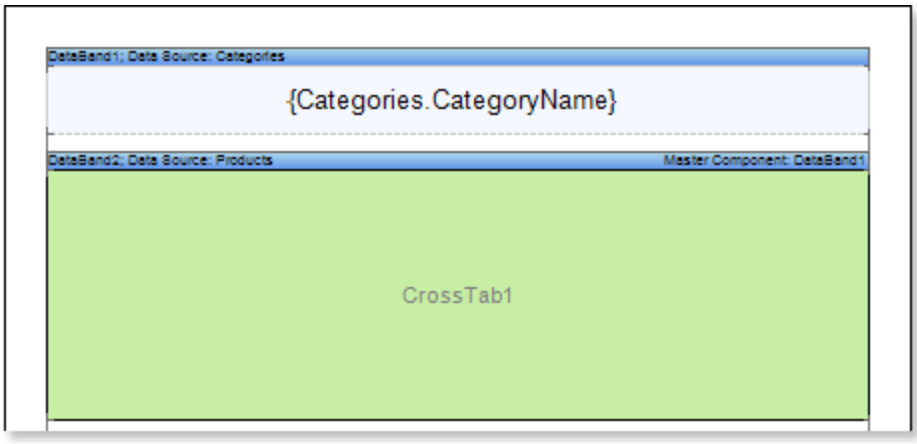
is the **DataBand2**:

8. Put the text component with an expression. Where the expression is a reference to the data field. For example: the **DataBand1**, that is the **Master** component, put the text component with the **{Categories.CategoryName}** expression;
9. Edit text and text components located in the **DataBand**:
   9.1. Drag the text component to the required place in the **DataBand**;
   9.2. Align the text in a text component;
   9.3. Change the value of the required properties. For example to set the **Word Wrap** property to **true**, if you want the text be wrapped;
   9.4. Set **Borders** of a text component, if required.
   9.5. Change the border color.

10. Put the **Cross-Tab** component in the **DataBand**. In this case, the **Cross-Tab** component will be located on the **DataBand2**, that is the **Detail** component of the report.




11. Edit the **Cross-Tab** component:
   11.1 Change values of the **Cross-Tab** properties. For example, set the **Can Shrink** property to **true**, if you want the **Cross-Tab** component be shrunk;

12. Specify the data source for the band of the **Cross-Tab** component, for example, using the **Data Source:**

13. Call the **Cross-Tab Designer**, for example, by selecting **Edit ..** (**Design..**) of the context menu of the cross-table component.

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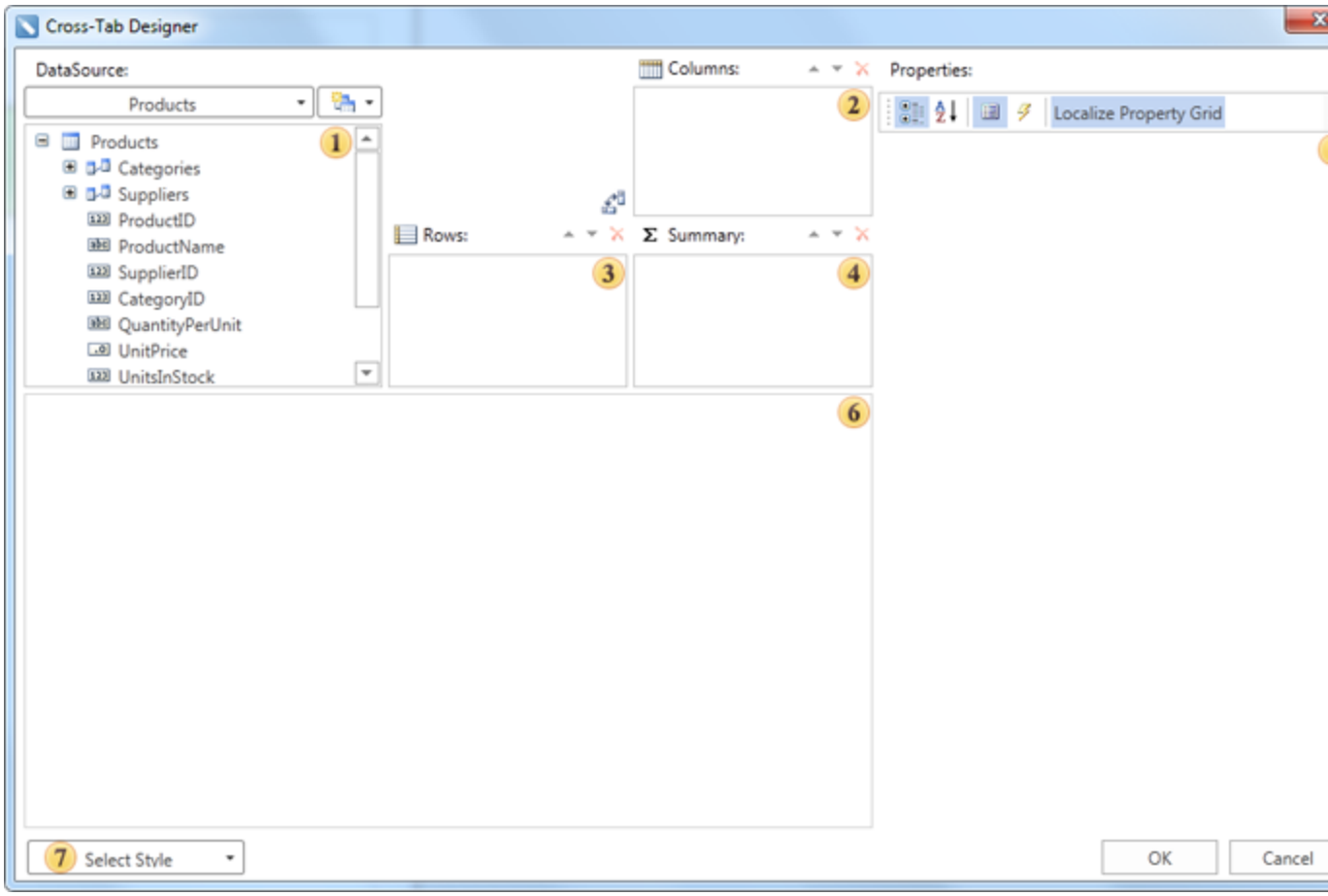


1 The **DataSource** field. This field displays data columns of the selected data source;
2 The **Columns** field. This field displays a list of columns of the data source for the entries by which columns in the cross-table will be formed;
3 The **Rows** field. This field displays a list of columns of the data source for the entries by which lines in the cross-table will be formed;
4 The **Summary** field. This field displays a list of columns of the data source for the entries by which summaries in the cross-table will be formed;
5 The **Properties** field. This field displays the properties of the selected element of cross-table;
6 The **Cross-Tab Cells** field. This field displays cells of the cross-table;
7 The **Description** field. This field displays a short description of the selected properties of the cross-table item;
8 The **Select Style** button. When you click, the drop-down list of styles appears for the cross-table.

14. Do the following in the **Cross-Tab Designer** editor:
    14.1. Add a data column from the 1 **DataSource** field to the 2 **Columns** field of the cross-table. Add a data column from the **DataSource** field to the **Columns** field of the cross-table. For example, add the **CategoryID** data column of data to the **Columns** field of the cross-table, and then one entry from this data column will correspond to one column in the rendered cross-table;
    14.2. Add a data column of the data source from the 1 **DataSource** field to the 3 **Rows** field of the cross-table. For example, add the **ProductName** data column to the **Rows** field of the cross-table, and then one entry from this data column will correspond to one row in the rendered cross-table, i.e. the number of entries in this data column will be equal to the number of rows in the

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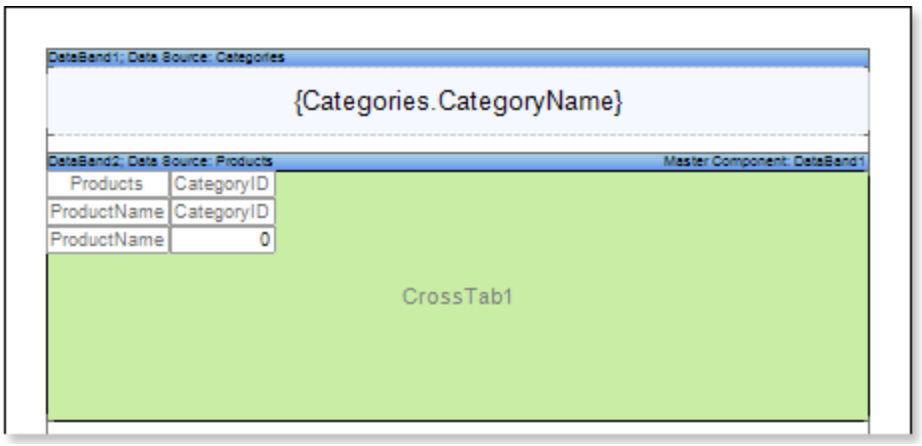
cross-table;
14.3. Add a data column from the 1 **DataSource** field to the 4 **Summary** field of the cross-table. For example, add the **UnitInStock** data column to the **Summary** field of the cross-table, i.e. entries in this data column will be summary entries in the cross-table;

15. Press the **OK** button in order to save your changes and go back to the report template with the cross-table.




16. Render a report. Click the **Preview** button or call the **Viewer** by pressing **F5** or select the **Preview** of the menu item. The picture below shows an example of the cross-table report:

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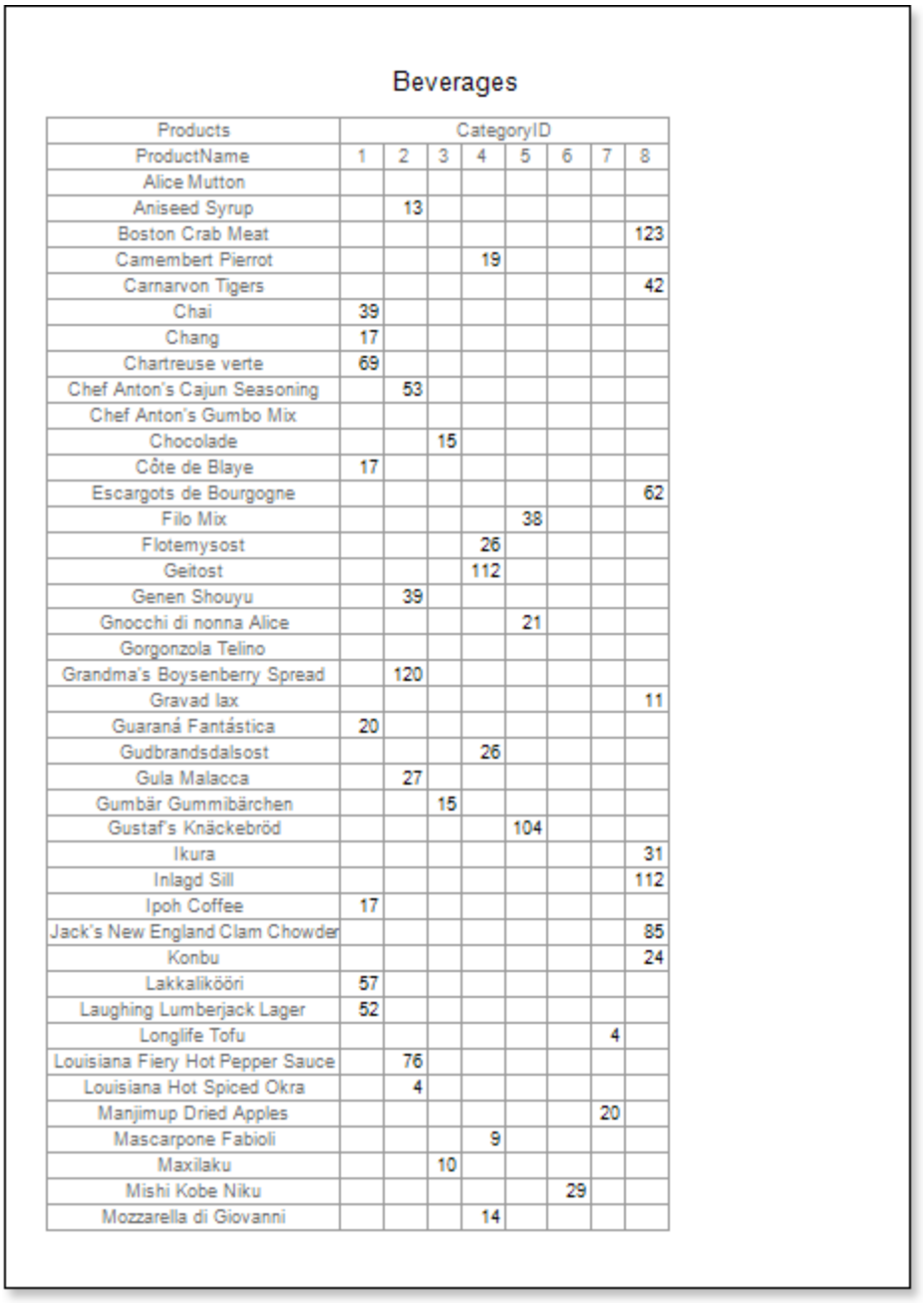

Beverages

| Products | CategoryID | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| ProductName | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Alice Mutton | | | | | | | | |
| Aniseed Syrup | | 13 | | | | | | |
| Boston Crab Meat | | | | | | | | 123 |
| Camembert Pierrot | | | | 19 | | | | |
| Carnarvon Tigers | | | | | | | | 42 |
| Chai | 39 | | | | | | | |
| Chang | 17 | | | | | | | |
| Chartreuse verte | 69 | | | | | | | |
| Chef Anton's Cajun Seasoning | | 53 | | | | | | |
| Chef Anton's Gumbo Mix | | | | | | | | |
| Chocolade | | | 15 | | | | | |
| Côte de Blaye | 17 | | | | | | | |
| Escargots de Bourgogne | | | | | | | | 62 |
| Filo Mix | | | | | 38 | | | |
| Flotemysost | | | | 26 | | | | |
| Geitost | | | | 112 | | | | |
| Genen Shouyu | | 39 | | | | | | |
| Gnocchi di nonna Alice | | | | | 21 | | | |
| Gorgonzola Telino | | | | | | | | |
| Grandma's Boysenberry Spread | | 120 | | | | | | |
| Gravad lax | | | | | | | | 11 |
| Guaraná Fantástica | 20 | | | | | | | |
| Gudbrandsdalsost | | | | 26 | | | | |
| Gula Malacca | | 27 | | | | | | |
| Gumbär Gummibärchen | | | 15 | | | | | |
| Gustaf's Knäckebröd | | | | | 104 | | | |
| Ikura | | | | | | | | 31 |
| Inlagd Sill | | | | | | | | 112 |
| Ipoh Coffee | 17 | | | | | | | |
| Jack's New England Clam Chowder | | | | | | | | 85 |
| Konbu | | | | | | | | 24 |
| Lakkalikööri | 57 | | | | | | | |
| Laughing Lumberjack Lager | 52 | | | | | | | |
| Longlife Tofu | | | | | | | 4 | |
| Louisiana Fiery Hot Pepper Sauce | | 76 | | | | | | |
| Louisiana Hot Spiced Okra | | 4 | | | | | | |
| Manjimup Dried Apples | | | | | | | 20 | |
| Mascarpone Fabioli | | | | 9 | | | | |
| Maxilaku | | | 10 | | | | | |
| Mishi Kobe Niku | | | | | | 29 | | |
| Mozzarella di Giovanni | | | | 14 | | | | |

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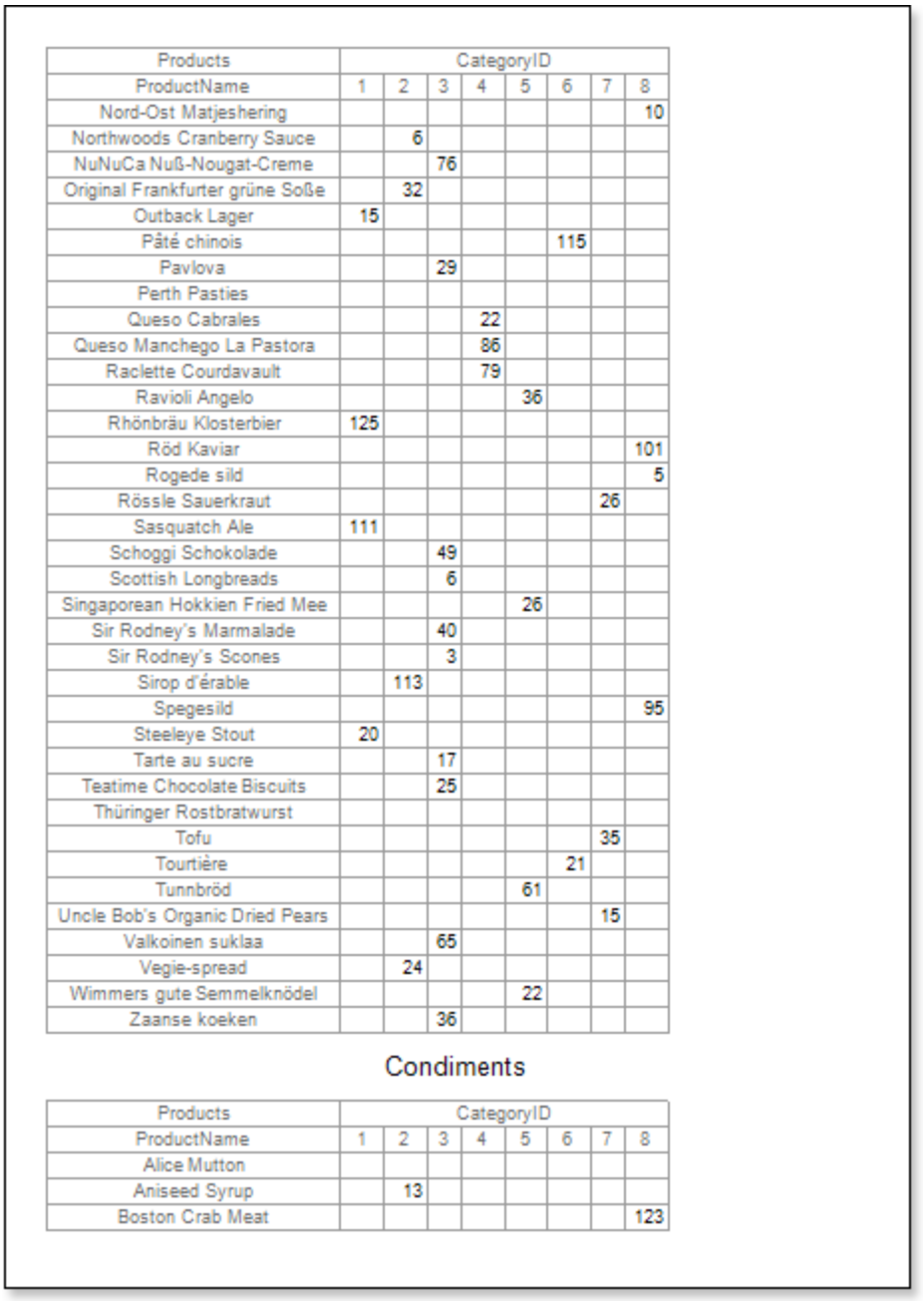

| Products | CategoryID | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| ProductName | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Nord-Ost Matjeshering | | | | | | | | 10 |
| Northwoods Cranberry Sauce | | 6 | | | | | | |
| NuNuCa Nuß-Nougat-Creme | | | 76 | | | | | |
| Original Frankfurter grüne Soße | | 32 | | | | | | |
| Outback Lager | 15 | | | | | | | |
| Pâté chinois | | | | | | 115 | | |
| Pavlova | | | 29 | | | | | |
| Perth Pasties | | | | | | | | |
| Queso Cabrales | | | | 22 | | | | |
| Queso Manchego La Pastora | | | | 86 | | | | |
| Raclette Courdavault | | | | 79 | | | | |
| Ravioli Angelo | | | | | 36 | | | |
| Rhönbräu Klosterbier | 125 | | | | | | | |
| Röd Kaviar | | | | | | | | 101 |
| Rogede sild | | | | | | | | 5 |
| Rössle Sauerkraut | | | | | | | 26 | |
| Sasquatch Ale | 111 | | | | | | | |
| Schoggi Schokolade | | | 49 | | | | | |
| Scottish Longbreads | | | 6 | | | | | |
| Singaporean Hokkien Fried Mee | | | | | 26 | | | |
| Sir Rodney's Marmalade | | | 40 | | | | | |
| Sir Rodney's Scones | | | 3 | | | | | |
| Sirop d'érable | | 113 | | | | | | |
| Spegesild | | | | | | | | 95 |
| Steeleye Stout | 20 | | | | | | | |
| Tarte au sucre | | | 17 | | | | | |
| Teatime Chocolate Biscuits | | | 25 | | | | | |
| Thüringer Rostbratwurst | | | | | | | | |
| Tofu | | | | | | | 35 | |
| Tourtière | | | | | | 21 | | |
| Tunnbröd | | | | | 61 | | | |
| Uncle Bob's Organic Dried Pears | | | | | | | 15 | |
| Valkoinen suklaa | | | 65 | | | | | |
| Vegie-spread | | 24 | | | | | | |
| Wimmers gute Semmelknödel | | | | | 22 | | | |
| Zaanse koeken | | | 36 | | | | | |

Condiments

| Products | CategoryID | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| ProductName | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Alice Mutton | | | | | | | | |
| Aniseed Syrup | | 13 | | | | | | |
| Boston Crab Meat | | | | | | | | 123 |

17. Go back to the report template;
18. If necessary, edit the text component in the **DataBand**:
    18.1. Change the background color of the text component;
    18.2. Change the style, color, and text type.

19. Edit cells in the report template:
    19.1. Change the font settings: type, style, size;
    19.2. Change the background color of a cell;
    19.3. Set the **Word Wrap** property to **true**, if you want the text to be wrapped;
    19.4. Set **Borders** if necessary;

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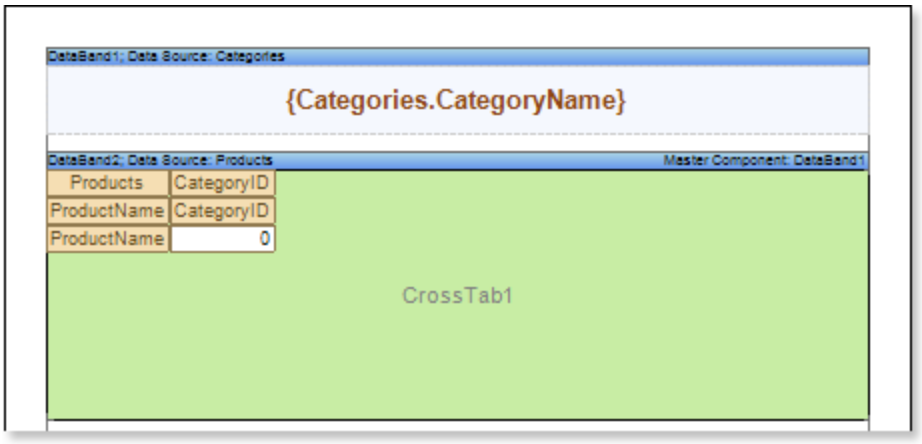
19.5. Change the border color.
19.6. Change the background color of cells, etc.




20. Render a report. Click the **Preview** button or call the **Viewer** by pressing **F5** or select the **Preview** of the menu item. The picture below shows an example of the cross-table report after editing cells of the report template:

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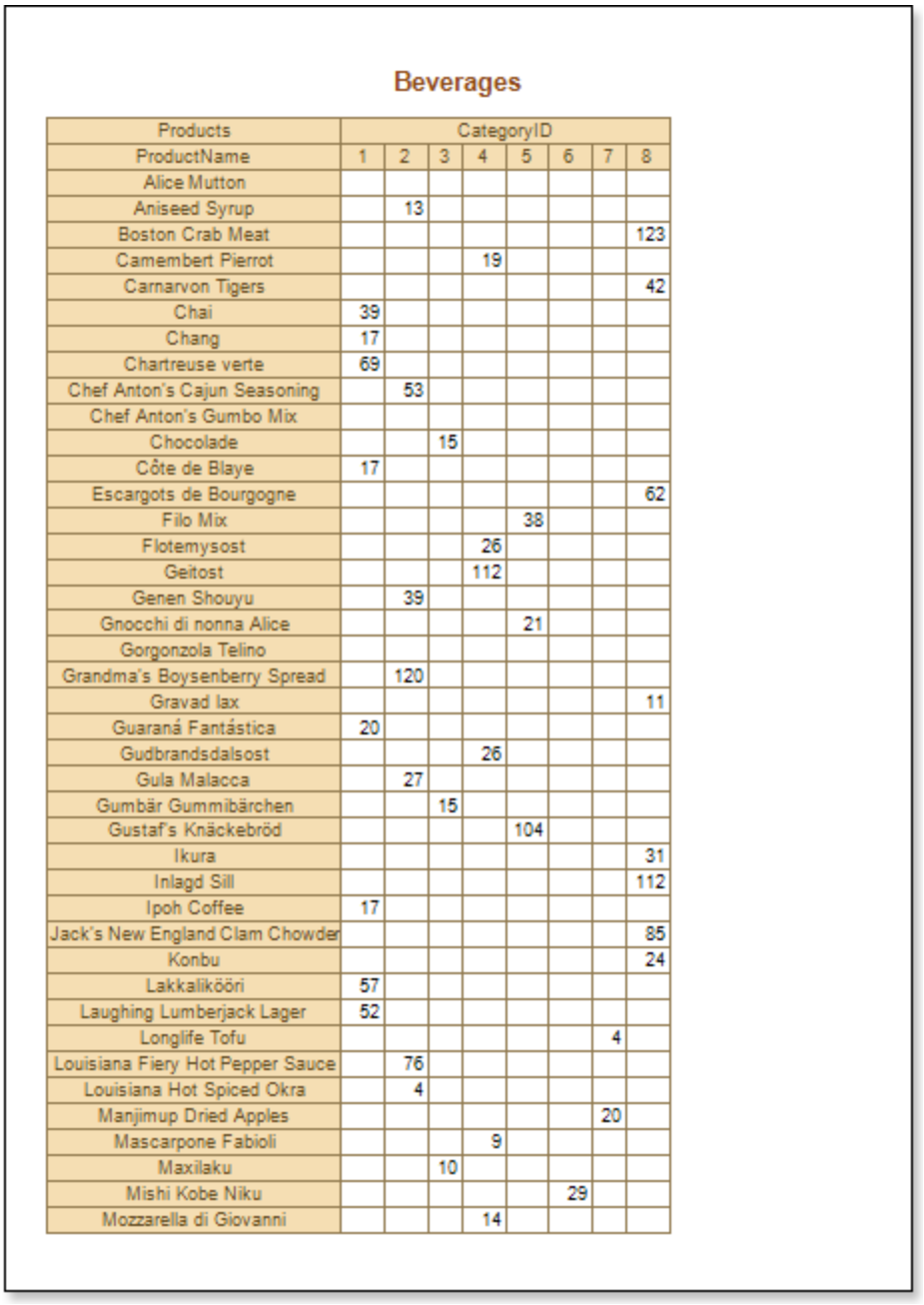

## Beverages

| Products | CategoryID | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| ProductName | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Alice Mutton | | | | | | | | |
| Aniseed Syrup | | 13 | | | | | | |
| Boston Crab Meat | | | | | | | | 123 |
| Camembert Pierrot | | | | 19 | | | | |
| Carnarvon Tigers | | | | | | | | 42 |
| Chai | 39 | | | | | | | |
| Chang | 17 | | | | | | | |
| Chartreuse verte | 69 | | | | | | | |
| Chef Anton's Cajun Seasoning | | 53 | | | | | | |
| Chef Anton's Gumbo Mix | | | | | | | | |
| Chocolade | | | 15 | | | | | |
| Côte de Blaye | 17 | | | | | | | |
| Escargots de Bourgogne | | | | | | | | 62 |
| Filo Mix | | | | | 38 | | | |
| Flotemysost | | | | 26 | | | | |
| Geitost | | | | 112 | | | | |
| Genen Shouyu | | 39 | | | | | | |
| Gnocchi di nonna Alice | | | | | 21 | | | |
| Gorgonzola Telino | | | | | | | | |
| Grandma's Boysenberry Spread | | 120 | | | | | | |
| Gravad lax | | | | | | | | 11 |
| Guaraná Fantástica | 20 | | | | | | | |
| Gudbrandsdalsost | | | | 26 | | | | |
| Gula Malacca | | 27 | | | | | | |
| Gumbär Gummibärchen | | | 15 | | | | | |
| Gustaf's Knäckebröd | | | | | 104 | | | |
| Ikura | | | | | | | | 31 |
| Inlagd Sill | | | | | | | | 112 |
| Ipoh Coffee | 17 | | | | | | | |
| Jack's New England Clam Chowder | | | | | | | | 85 |
| Konbu | | | | | | | | 24 |
| Lakkalikööri | 57 | | | | | | | |
| Laughing Lumberjack Lager | 52 | | | | | | | |
| Longlife Tofu | | | | | | | 4 | |
| Louisiana Fiery Hot Pepper Sauce | | 76 | | | | | | |
| Louisiana Hot Spiced Okra | | 4 | | | | | | |
| Manjimup Dried Apples | | | | | | | 20 | |
| Mascarpone Fabioli | | | | 9 | | | | |
| Maxilaku | | | 10 | | | | | |
| Mishi Kobe Niku | | | | | | 29 | | |
| Mozzarella di Giovanni | | | | 14 | | | | |

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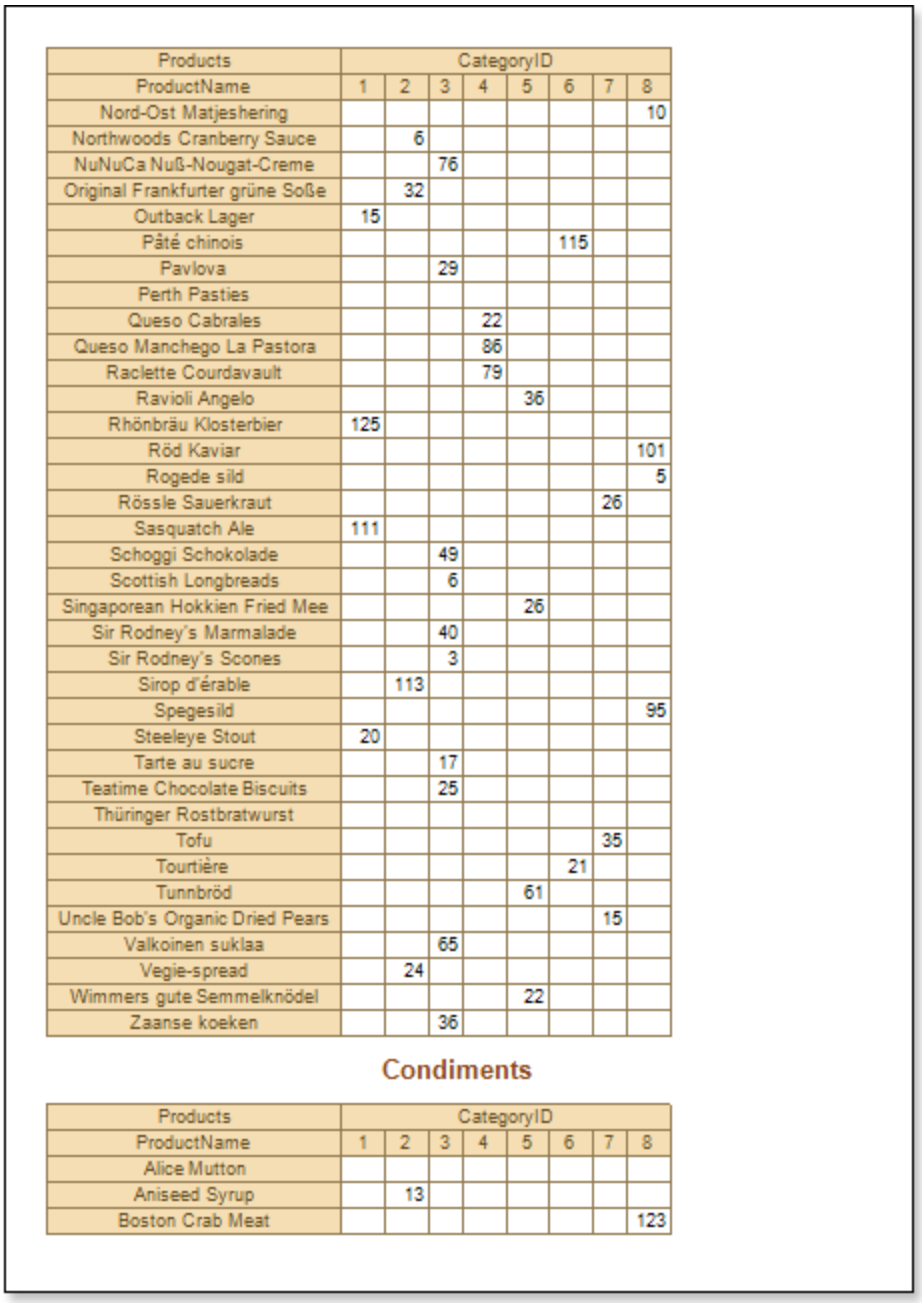

| Products | CategoryID | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| ProductName | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Nord-Ost Matjeshering | | | | | | | | 10 |
| Northwoods Cranberry Sauce | | 6 | | | | | | |
| NuNuCa Nuß-Nougat-Creme | | | 76 | | | | | |
| Original Frankfurter grüne Soße | | 32 | | | | | | |
| Outback Lager | 15 | | | | | | | |
| Pâté chinois | | | | | | 115 | | |
| Pavlova | | | 29 | | | | | |
| Perth Pasties | | | | | | | | |
| Queso Cabrales | | | | 22 | | | | |
| Queso Manchego La Pastora | | | | 86 | | | | |
| Raclette Courdavault | | | | 79 | | | | |
| Ravioli Angelo | | | | | 36 | | | |
| Rhönbräu Klosterbier | 125 | | | | | | | |
| Röd Kaviar | | | | | | | | 101 |
| Rogede sild | | | | | | | | 5 |
| Rössle Sauerkraut | | | | | | | 26 | |
| Sasquatch Ale | 111 | | | | | | | |
| Schoggi Schokolade | | | 49 | | | | | |
| Scottish Longbreads | | | 6 | | | | | |
| Singaporean Hokkien Fried Mee | | | | | 26 | | | |
| Sir Rodney's Marmalade | | | 40 | | | | | |
| Sir Rodney's Scones | | | 3 | | | | | |
| Sirop d'érable | | 113 | | | | | | |
| Spegesild | | | | | | | | 95 |
| Steeleye Stout | 20 | | | | | | | |
| Tarte au sucre | | | 17 | | | | | |
| Teatime Chocolate Biscuits | | | 25 | | | | | |
| Thüringer Rostbratwurst | | | | | | | | |
| Tofu | | | | | | | 35 | |
| Tourtière | | | | | | 21 | | |
| Tunnbröd | | | | | 61 | | | |
| Uncle Bob's Organic Dried Pears | | | | | | | 15 | |
| Valkoinen suklaa | | | 65 | | | | | |
| Vegie-spread | | 24 | | | | | | |
| Wimmers gute Semmelknödel | | | | | 22 | | | |
| Zaanse koeken | | | 36 | | | | | |

Condiments

| Products | CategoryID | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| ProductName | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Alice Mutton | | | | | | | | |
| Aniseed Syrup | | 13 | | | | | | |
| Boston Crab Meat | | | | | | | | 123 |

## Adding styles

1. Go back to the report template;
2. Invoke the **Style Designer**;

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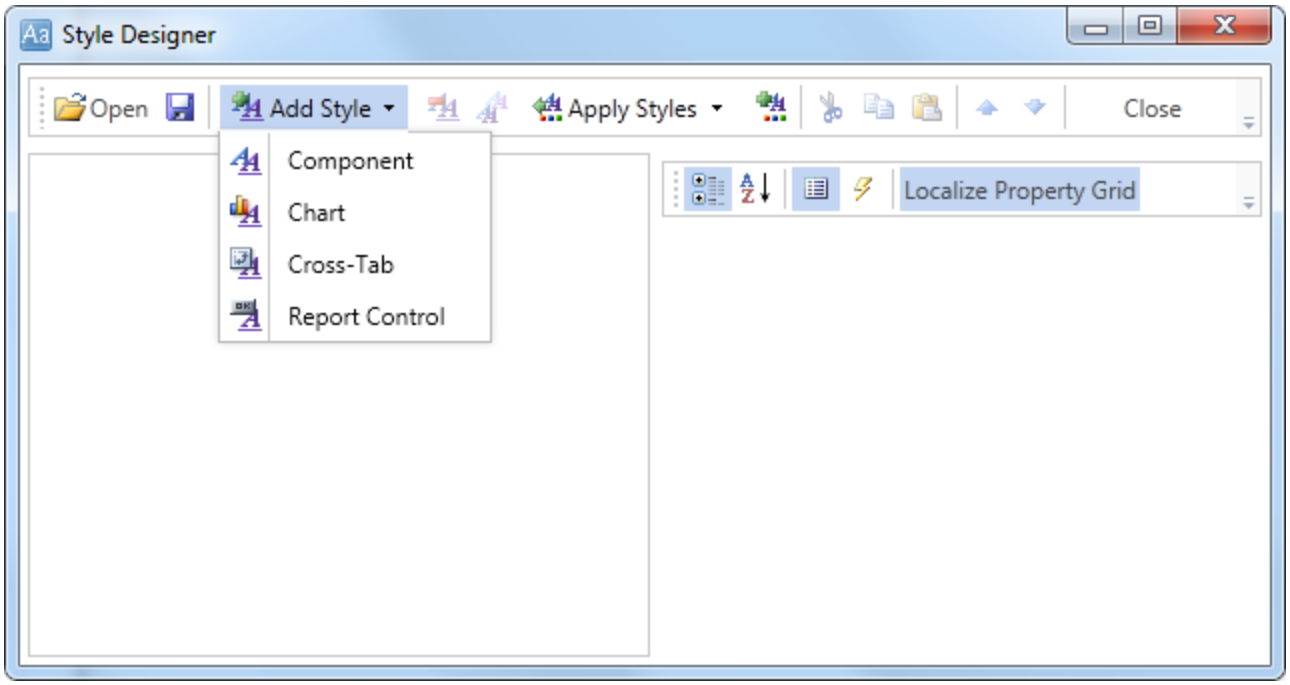


Click the **Add Style** button to start creating a style. Select **Cross-Tab** from the drop down list. Call the new style as **Style for Cross-Tab**. To create a custom style it is necessary to change the **Color** property, where the value of this property and is a color scheme.

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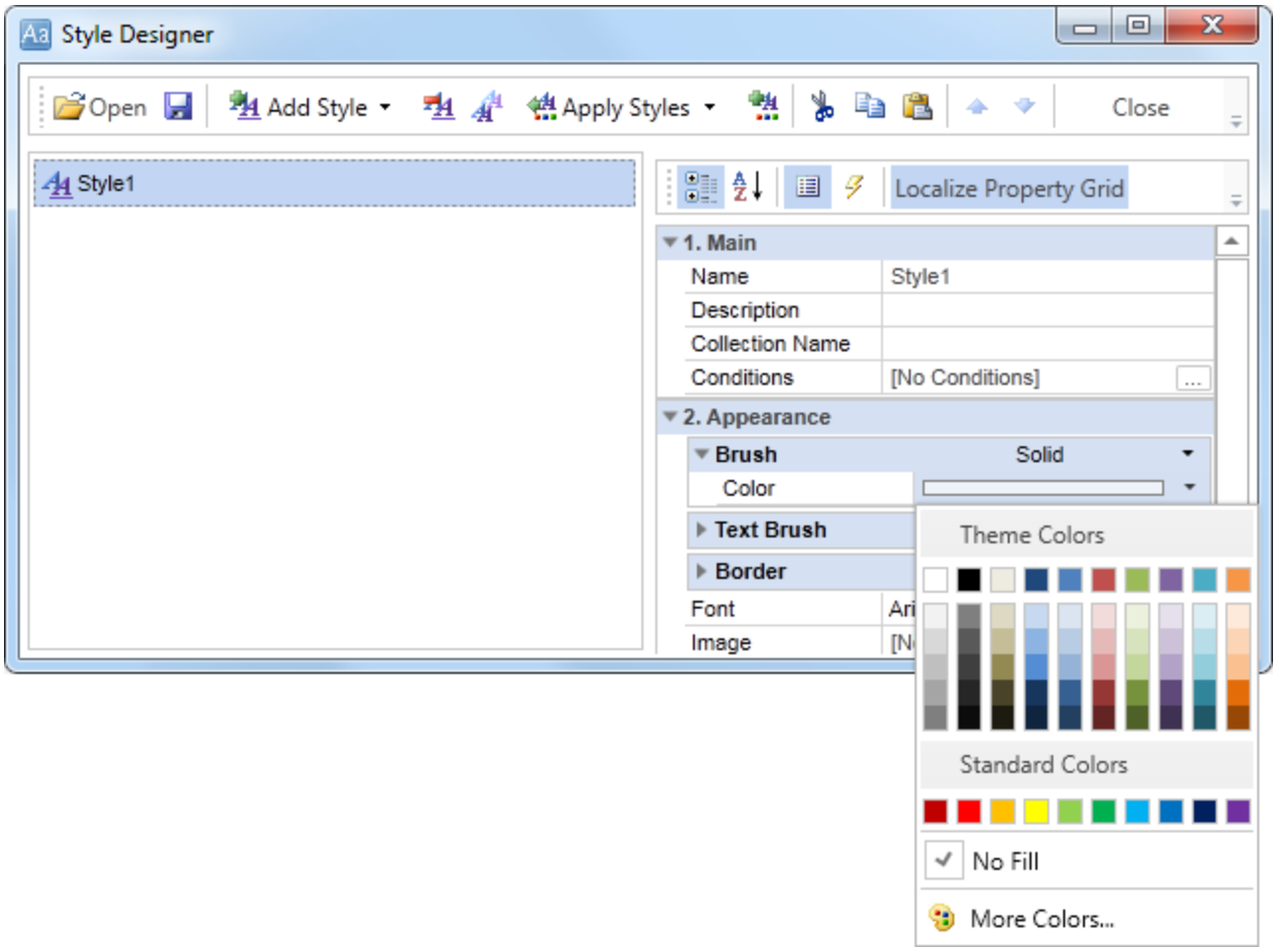


After the style is created, press the **Close** button. In the list of values of the **Select Style** button in the editor of the cross-table, a custom style will be displayed. In our case, this is the **Style for Cross-Tab**. Select this value;

3. Render a report. Click the **Preview** button or call the **Viewer** by pressing **F5** or select the **Preview** of the menu item. Now you can see the result of the rendered report:

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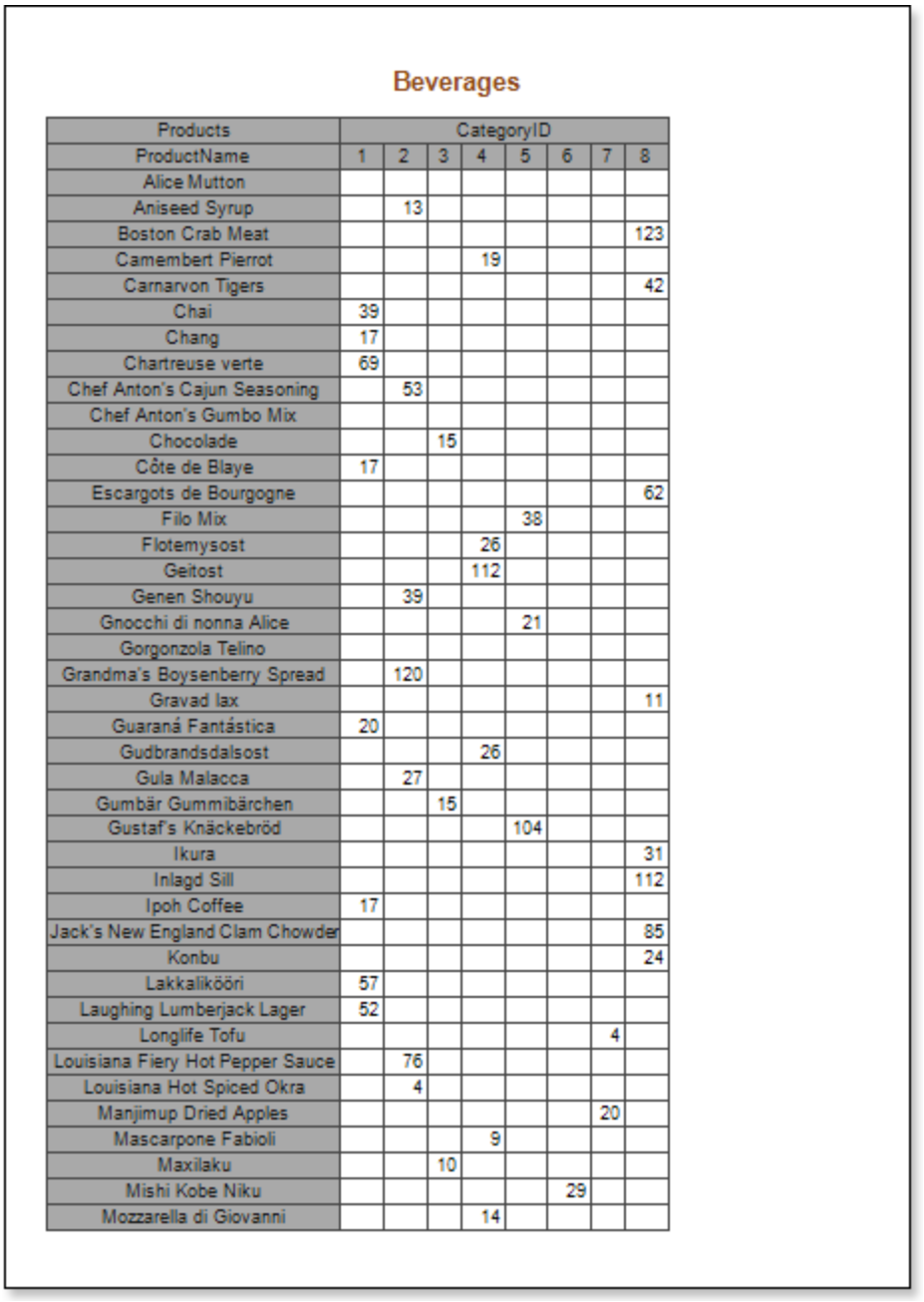

## Beverages

| Products | CategoryID | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| ProductName | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Alice Mutton | | | | | | | | |
| Aniseed Syrup | | 13 | | | | | | |
| Boston Crab Meat | | | | | | | | 123 |
| Camembert Pierrot | | | | 19 | | | | |
| Carnarvon Tigers | | | | | | | | 42 |
| Chai | 39 | | | | | | | |
| Chang | 17 | | | | | | | |
| Chartreuse verte | 69 | | | | | | | |
| Chef Anton's Cajun Seasoning | | 53 | | | | | | |
| Chef Anton's Gumbo Mix | | | | | | | | |
| Chocolade | | | 15 | | | | | |
| Côte de Blaye | 17 | | | | | | | |
| Escargots de Bourgogne | | | | | | | | 62 |
| Filo Mix | | | | | 38 | | | |
| Flotemysost | | | | 26 | | | | |
| Geitost | | | | 112 | | | | |
| Genen Shouyu | | 39 | | | | | | |
| Gnocchi di nonna Alice | | | | | 21 | | | |
| Gorgonzola Telino | | | | | | | | |
| Grandma's Boysenberry Spread | | 120 | | | | | | |
| Gravad lax | | | | | | | | 11 |
| Guaraná Fantástica | 20 | | | | | | | |
| Gudbrandsdalsost | | | | 26 | | | | |
| Gula Malacca | | 27 | | | | | | |
| Gumbär Gummibärchen | | | 15 | | | | | |
| Gustaf's Knäckebröd | | | | | 104 | | | |
| Ikura | | | | | | | | 31 |
| Inlagd Sill | | | | | | | | 112 |
| Ipoh Coffee | 17 | | | | | | | |
| Jack's New England Clam Chowder | | | | | | | | 85 |
| Konbu | | | | | | | | 24 |
| Lakkalikööri | 57 | | | | | | | |
| Laughing Lumberjack Lager | 52 | | | | | | | |
| Longlife Tofu | | | | | | | 4 | |
| Louisiana Fiery Hot Pepper Sauce | | 76 | | | | | | |
| Louisiana Hot Spiced Okra | | 4 | | | | | | |
| Manjimup Dried Apples | | | | | | | 20 | |
| Mascarpone Fabioli | | | | 9 | | | | |
| Maxilaku | | | 10 | | | | | |
| Mishi Kobe Niku | | | | | | 29 | | |
| Mozzarella di Giovanni | | | | 14 | | | | |

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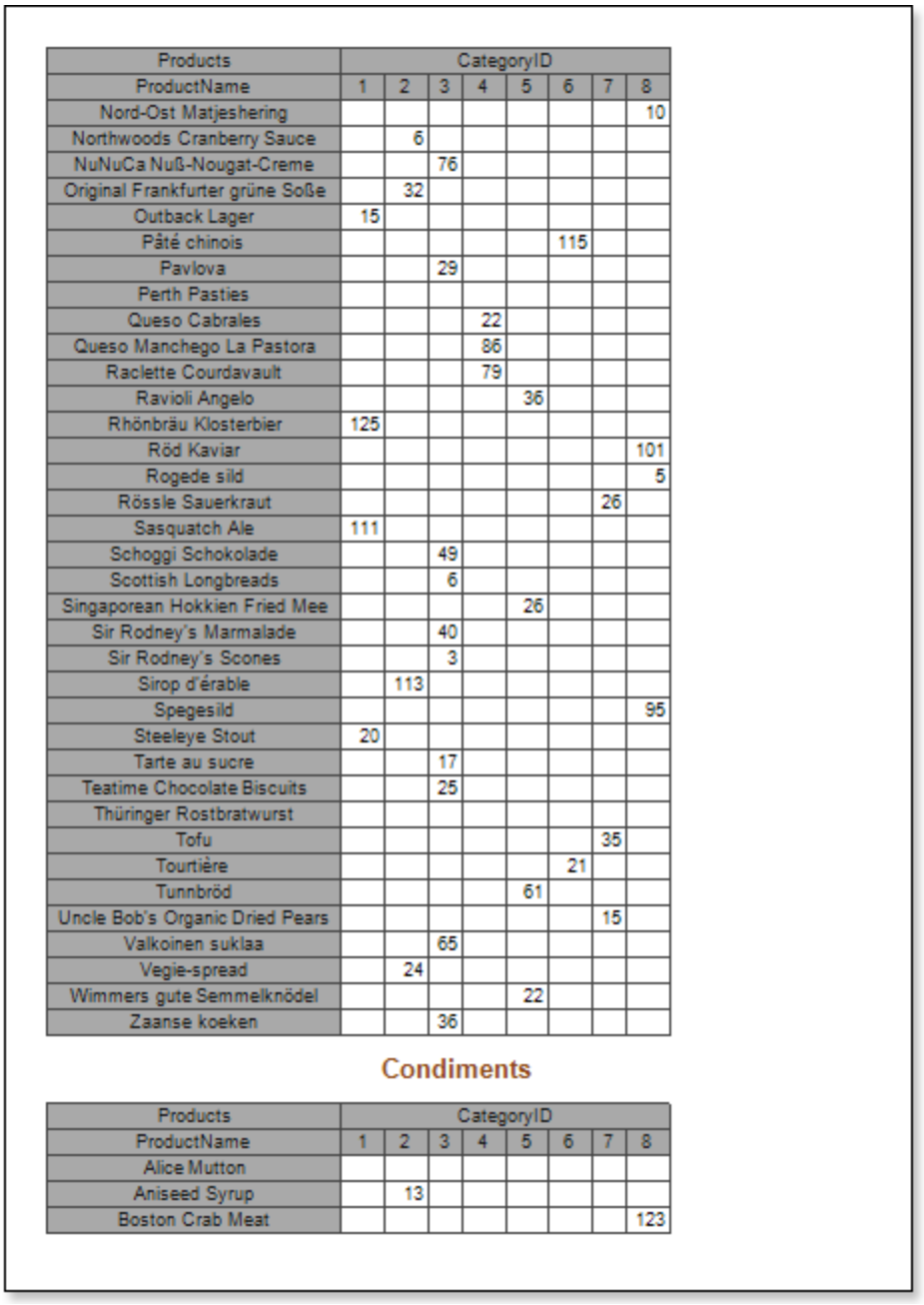

| Products | CategoryID | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| ProductName | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Nord-Ost Matjeshering | | | | | | | | 10 |
| Northwoods Cranberry Sauce | | 6 | | | | | | |
| NuNuCa Nuß-Nougat-Creme | | | 76 | | | | | |
| Original Frankfurter grüne Soße | | 32 | | | | | | |
| Outback Lager | 15 | | | | | | | |
| Pâté chinois | | | | | | 115 | | |
| Pavlova | | | 29 | | | | | |
| Perth Pasties | | | | | | | | |
| Queso Cabrales | | | | 22 | | | | |
| Queso Manchego La Pastora | | | | 86 | | | | |
| Raclette Courdavault | | | | 79 | | | | |
| Ravioli Angelo | | | | | 36 | | | |
| Rhönbräu Klosterbier | 125 | | | | | | | |
| Röd Kaviar | | | | | | | | 101 |
| Rogede sild | | | | | | | | 5 |
| Rössle Sauerkraut | | | | | | | 26 | |
| Sasquatch Ale | 111 | | | | | | | |
| Schoggi Schokolade | | | 49 | | | | | |
| Scottish Longbreads | | | 6 | | | | | |
| Singaporean Hokkien Fried Mee | | | | | 26 | | | |
| Sir Rodney's Marmalade | | | 40 | | | | | |
| Sir Rodney's Scones | | | 3 | | | | | |
| Sirop d'érable | | 113 | | | | | | |
| Spegesild | | | | | | | | 95 |
| Steeleye Stout | 20 | | | | | | | |
| Tarte au sucre | | | 17 | | | | | |
| Teatime Chocolate Biscuits | | | 25 | | | | | |
| Thüringer Rostbratwurst | | | | | | | | |
| Tofu | | | | | | | 35 | |
| Tourtière | | | | | | 21 | | |
| Tunnbröd | | | | | 61 | | | |
| Uncle Bob's Organic Dried Pears | | | | | | | 15 | |
| Valkoinen suklaa | | | 65 | | | | | |
| Vegie-spread | | 24 | | | | | | |
| Wimmers gute Semmelknödel | | | | | 22 | | | |
| Zaanse koeken | | | 36 | | | | | |

Condiments

| Products | CategoryID | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| ProductName | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Alice Mutton | | | | | | | | |
| Aniseed Syrup | | 13 | | | | | | |
| Boston Crab Meat | | | | | | | | 123 |

## 4.10 Hierarchical Report

For better understanding this step-by-step instruction, please watch the video file.

Do the following steps to create a hierarchical report:

1. Run the designer;
2. Connect data:

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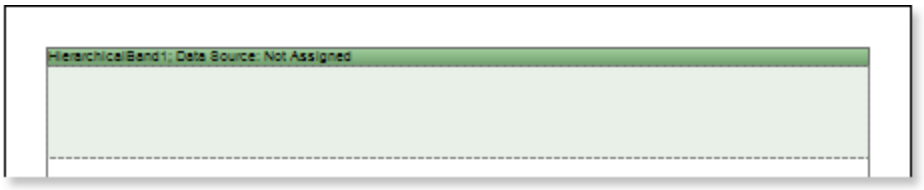
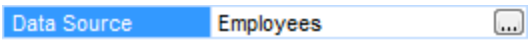
2.1. Create **New Connection**;
2.2. Create **New Data Source**;

3. Put the **HierarchicalBand** on a page of the report template**.**

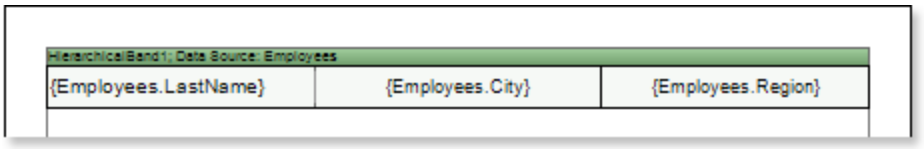



4. Edit the **HierarchicalBand**:
4.1. Align the **HierarchicalBand** by height;
4.2. Set the properties of the **HierarchicalBand**. For example, set the **Can Break** property to **true**, if it is necessary for the **HierarchicalBand** to be broken;
4.3. Set the background of the **HierarchicalBand**;
4.4. Set the **Borders** of the **HierarchicalBand**;
4.5. Set the border color.

5. Set the data source of the **HierarchicalBand** using the **Data Source** property:




6. Put text components with expressions in the **HierarchicalBand**. Where the expression is a reference to the data field. For example, put three text component with expressions: **{Employees.LastName}, {Employees.City}**, and **{Employees.Region}**;
7. Edit text (**Text**) and text components (**TextBox**):
7.1. Drag the text component to the required place in the **HierarchicalBand**;
7.2. Set the font of the text: the size, style, color;
7.3. Align the text component vertically and horizontally;
7.4. Set the background color of the text component;
7.5. Align text in the text component;
7.6. Set values of the properties of a text component. For example, set the **Word Wrap** property to **true**, if you want the text to be wrapped;
7.7. Set **Borders** of a text component.
7.8. Set the border color.




8. Set the **KeyDataColum** property, i.e. select a data column on which an identification number of the data row will be assigned. In this case, select the **EmployeeID** data column:

9. Set the **MasterKeyDataColum** property, i.e. select a data column on which the reference to the

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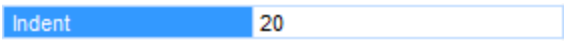
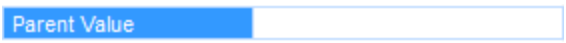
table's primary key of the parent entry will be specified. In this case, select the **ReportsTo** data column:

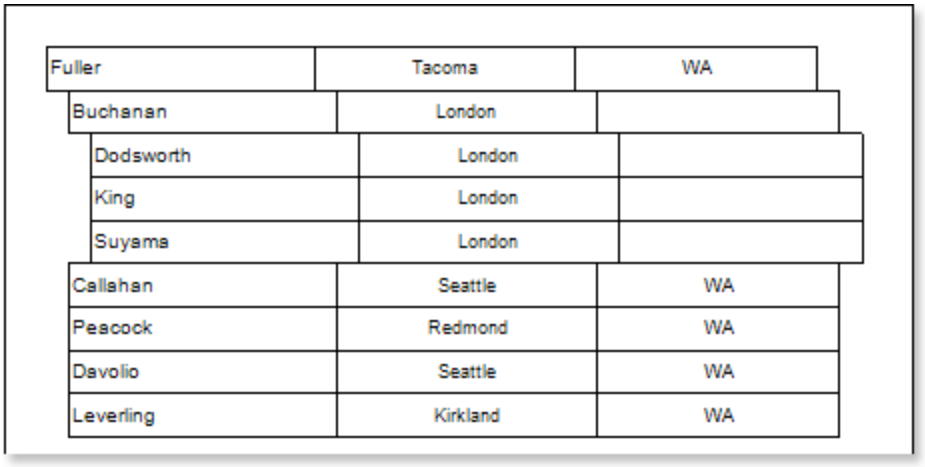
10. Set the **Indent** property, i.e. set an offset of the detail entry in relation to the parent one. In this example, the **Indent** property will be 20 units in the report (centimeters, inches, hundredths of inches, pixels);




11. Set the **ParentValue** property, i.e. indicate the entry, which will be a parent for all rows. If this property is not specified, the default value is used. By default, the **Parent Value** property is set to **null**. In this case, the value of the **ParentValue** property is not specified, so the default value is used:




12. Click the **Preview** button or call **Viewer**, using an **F5** hot key or the **Preview** menu item. After rendering a report, all references to data sources will be replaced with data from these sources. Data will be taken sequentially from the data source, which has been specified for this band. Number of copies of the **DataBand** in the report is equal to the number of rows in the data source.



| | | |
|---|---|---|
| Fuller | Tacoma | WA |
| Buchanan | London | |
| Dodsworth | London | |
| King | London | |
| Suyama | London | |
| Callahan | Seattle | WA |
| Peacock | Redmond | WA |
| Davolio | Seattle | WA |
| Leverling | Kirkland | WA |

13. Go back to the report template;
14. If necessary, add other bands into the report template, for example, **HeaderBand**;
15. Edit this band:
    15.1. Align the **HeaderBand** vertically;
    15.2. Set properties of the **HeaderBand**, if necessary;
    15.3. Set the background color of the **HeaderBand**;
    15.4. If necessary, set the **Borders**;
    15.5. Change the border color.

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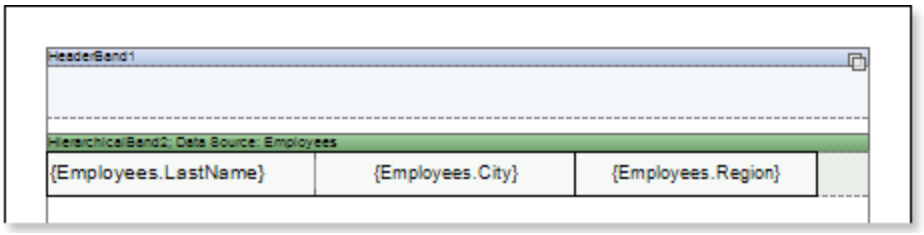
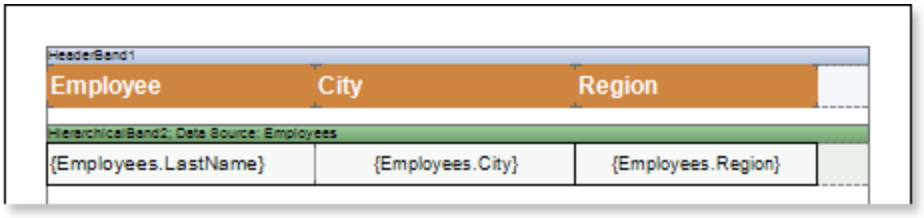
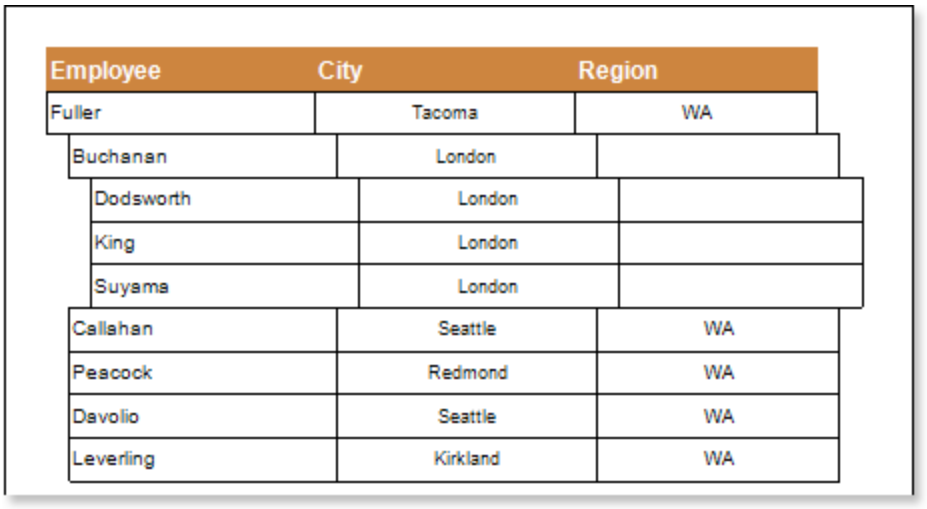



16. Put text components with the expressions. Where expressions in text components in the **HeaderBand** will be the data headers;
17. Edit text and text components:
    17.1. Drag the text component to the required place in the band;
    17.2. Set the font settings: size, style, color;
    17.3. Align the text component vertically and horizontally;
    17.4. Set the background color of the text component;
    17.5. Align the text in a text component;
    17.6. Set the value of properties of a text component, if necessary;
    17.7. If necessary, set **Borders** of a text component;
    17.8. Set the border color.




18. Click the **Preview** button or call **Viewer**, using an **F5** hot key or the **Preview** menu item. After rendering a report, all references to data sources will be replaced with data from these sources:



| Employee | City | Region |
|---|---|---|
| Fuller | Tacoma | WA |
| Buchanan | London | |
| Dodsworth | London | |
| King | London | |
| Suyama | London | |
| Callahan | Seattle | WA |
| Peacock | Redmond | WA |
| Davolio | Seattle | WA |
| Leverling | Kirkland | WA |

## Adding styles

1. Go back to the report template;

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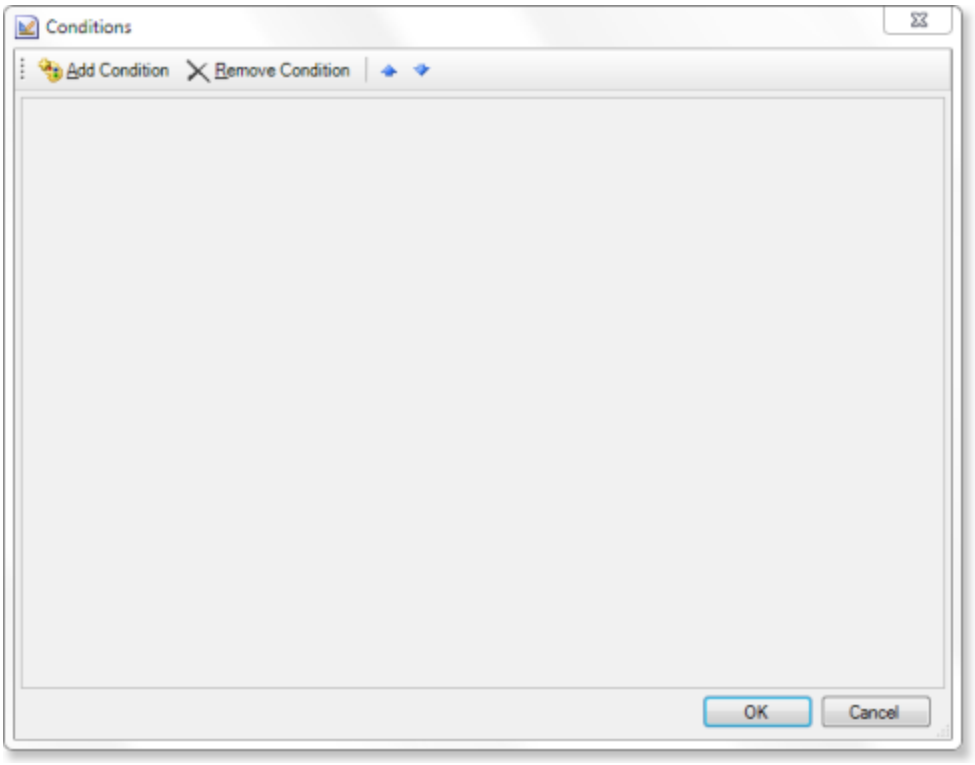
1. Select component. In our case this is the text component;
2. Invoke the **Conditions** dialog box. For example, click the **Conditions** button on the control panel.




3. To get started, you must click the **Add Condition** button and in the **Conditions** dialog box the condition and formatting options will be displayed. The condition can be of two types: **Value** and **Expression**. In this case, consider an example of a condition, such as **Expression**. The picture below shows an example of **Conditions** dialog box with options and conditions of formatting:

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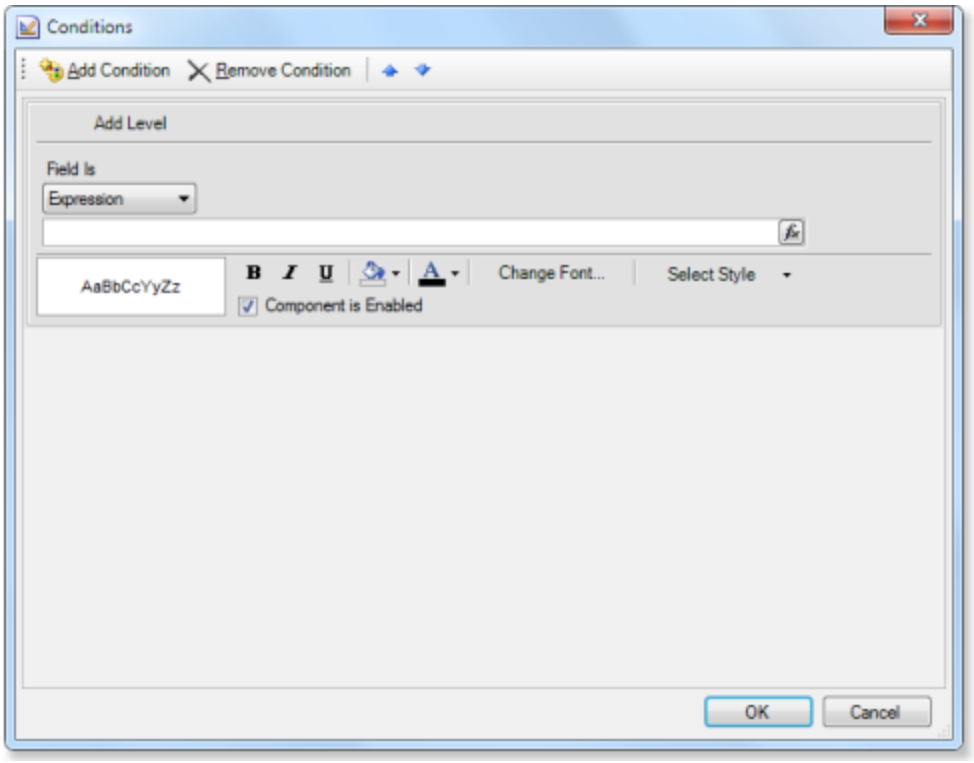
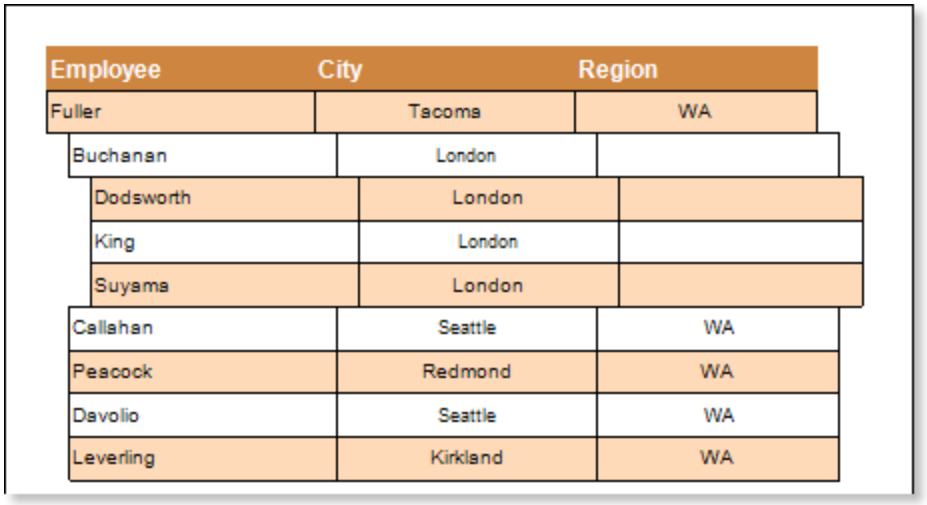



4. Specify the options of conditional formatting. In this case, to specify the condition means to specify the expression. For example, **Line% 2 == 1**, and set the formatting means to change the background, for example, by pressing the **Back Color** button and selecting the drop-down list of values of the background color.
5. Click **OK**. It should also be noted that in order to odd and even rows have different styles, it is necessary to make a conditional formatting of each text component;
6. Render a report by clicking on the **Preview** tab or call the **Viewer** pressing **F5** or clicking **Preview** menu item.



| Employee | City | Region |
|---|---|---|
| Fuller | Tacoma | WA |
| Buchanan | London | |
| Dodsworth | London | |
| King | London | |
| Suyama | London | |
| Callahan | Seattle | WA |
| Peacock | Redmond | WA |
| Davolio | Seattle | WA |
| Leverling | Kirkland | WA |

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## 4.11 Report with Sub-Report

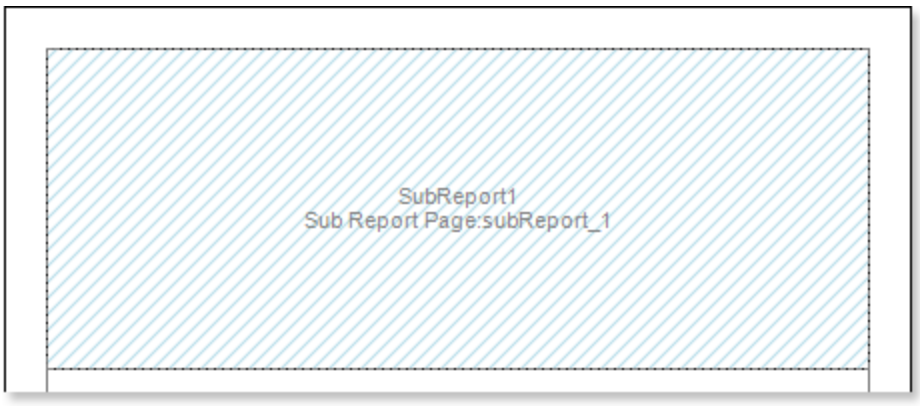
For better understanding this step-by-step instruction, please watch the video file.

Do the following steps to create a sub-report:

1. Run the designer;
2. Connect data:
   2.1. Create **New Connection**;
   2.2. Create **New Data Source**;

3. Add the **Sub-Report** component to a report on a page of the report template:

4. Edit the **Sub-Report** component:
   4.1. Stretch the **Sub-Report** component as seen on the picture below;
   4.2. Change the value of properties of **Sub-Report**. For example, set the **Keep Sub-Report Together** property to **true**, if you want the sub-report to be kept together;;
   4.3. Change the background color of the component.




5. Go to the sub-report page;
6. Add to the **DataBand** to the sub-report page**;**

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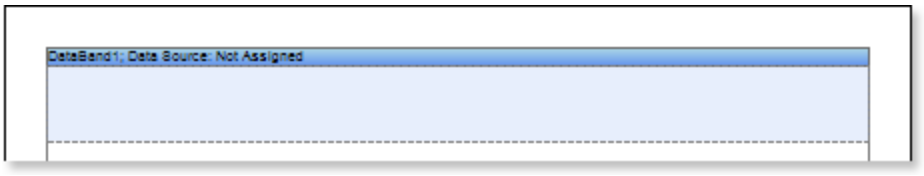
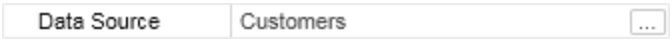
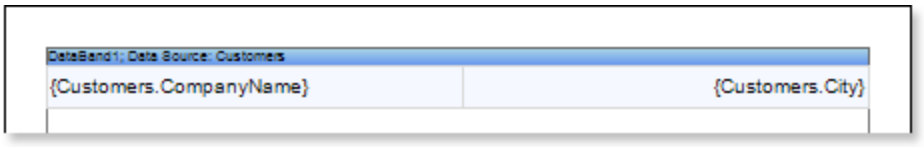



7. Edit the **DataBand**:
   7.1. Align the **DataBand** vertically;
   7.2. Change values of properties of the **DataBand**. For example, set the **CanBreak** property to **true** , if you want this band to be broken;
   7.3. Change background color of the band;
   7.4. Set **Borders**, if necessary;
   7.5. Change the border color.

8. Specify the data source for the **DataBand** using the **Data Source** property:




9. Put text components with expressions in the **DataBand**. Where an expression is a reference to a data field. For example, put the following expressions to two text components: **{Customers. CompanyName}** and **{Customers.City}**;
10. Edit **Text** and **TextBoxes**:
   10.1. Drag the text component to the required place in the **DataBand**;
   10.2. Set the text font: size, style, color;
   10.3. Align text component vertically and horizontally;
   10.4. Set the background color of the text component;
   10.5. Align text in the component;
   10.6. Set values of the properties of text components. For example to set the **Word Wrap** property to **true**, if you want the text to be wrapped;
   10.7. Set **Borders** of a text component.
   10.8. Set the border color.




11. Click the **Preview** button or call **Viewer**, using an **F5** hot key or the **Preview** menu item to see how the report will look like.

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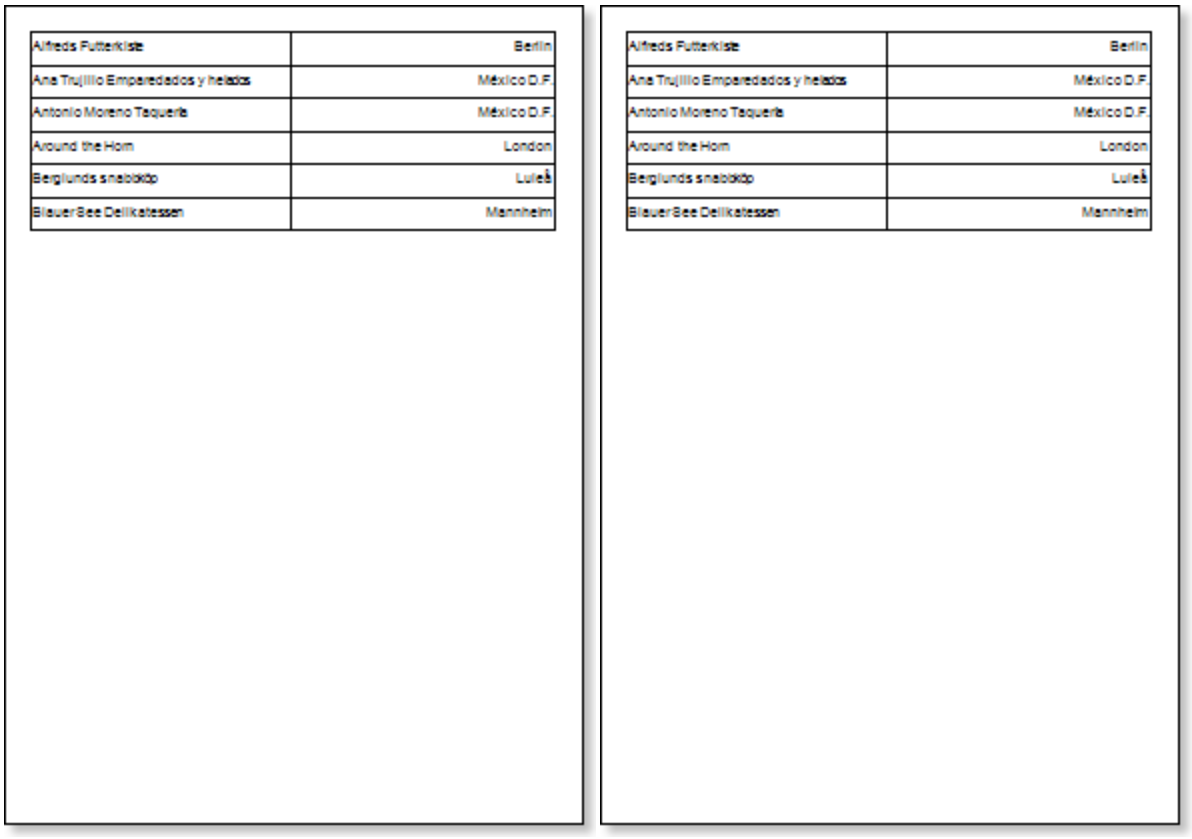

| | |
|---|---|
| Alfreds Futterkiste | Berlin |
| Ana Trujillo Emparedados y helados | México D.F. |
| Antonio Moreno Taquería | México D.F. |
| Around the Horn | London |
| Berglunds snabbköp | Luleå |
| Blauer See Delikatessen | Mannheim |


| | |
|---|---|
| Alfreds Futterkiste | Berlin |
| Ana Trujillo Emparedados y helados | México D.F. |
| Antonio Moreno Taquería | México D.F. |
| Around the Horn | London |
| Berglunds snabbköp | Luleå |
| Blauer See Delikatessen | Mannheim |


As can be seen from the picture above, the report generator rendered the report, which was located in the nested page and placed it on the report page but not in the Sub-Report component.

12. Go back to the report template;
13. If necessary, add some bands to the report template, for example, the **PageHeaderBand**;
14. Edit this band:
    14.1. Align vertically this band;
    14.2. Set values of the properties of the **PageHeaderBand**, if necessary;
    14.3. Set the background color;
    14.4. Set **Borders** of a text component.
    14.5. Set the border color.

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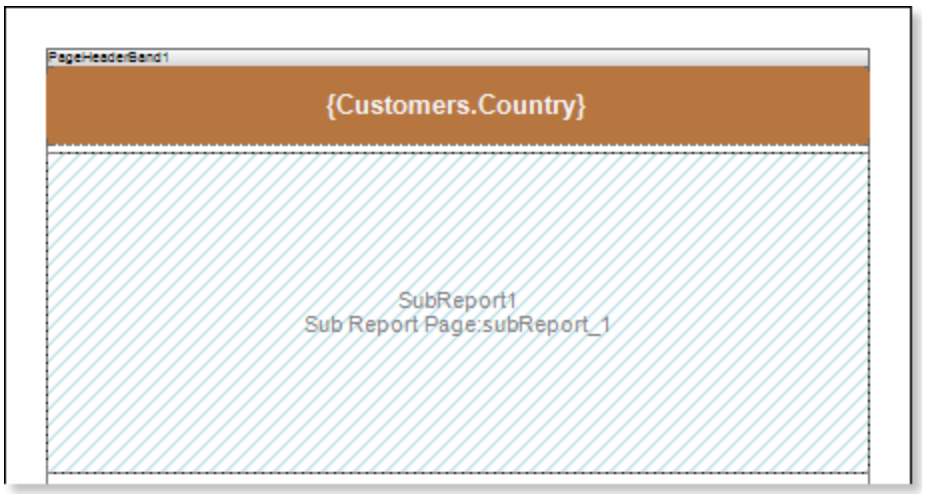
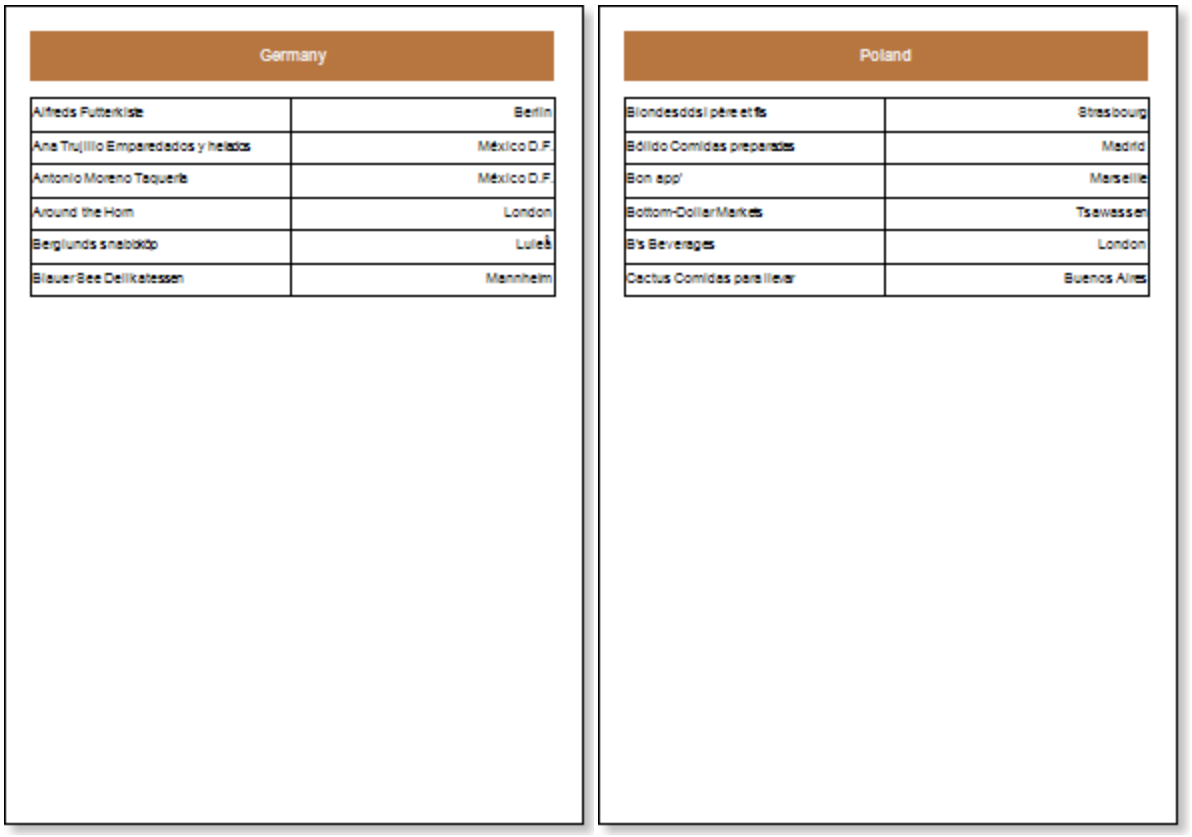
15. Put a text component with expression where the expression of the text component in the **PageHeaderBand** will be the page title.
16. Edit the text component:
    16.1. Drag the text component to the required place in the band;
    16.2. Set the text font: size, style, color;
    16.3. Align text component vertically and horizontally;
    16.4. Set the background color of the text component;
    16.5. Align text in the component;
    16.6. Set values of the properties of text components;
    16.7. Set **Borders** of a text component.
    16.8. Set the border color.




17. Click the **Preview** button or call **Viewer**, using an **F5** hot key or the **Preview** menu item to see how the report will look like.

© 2003-2013 Stimulsoft




## Adding styles

1. Go back to the report template;
2. Select the sub-report;
3. Select the **DataBand**;
4. Change values of **Even style** and **Odd style** properties. If values of these properties are not set, then select the **Edit Styles** in the list of values of these properties and, using **Style Designer**, create a new style. The picture below shows the **Style Designer**

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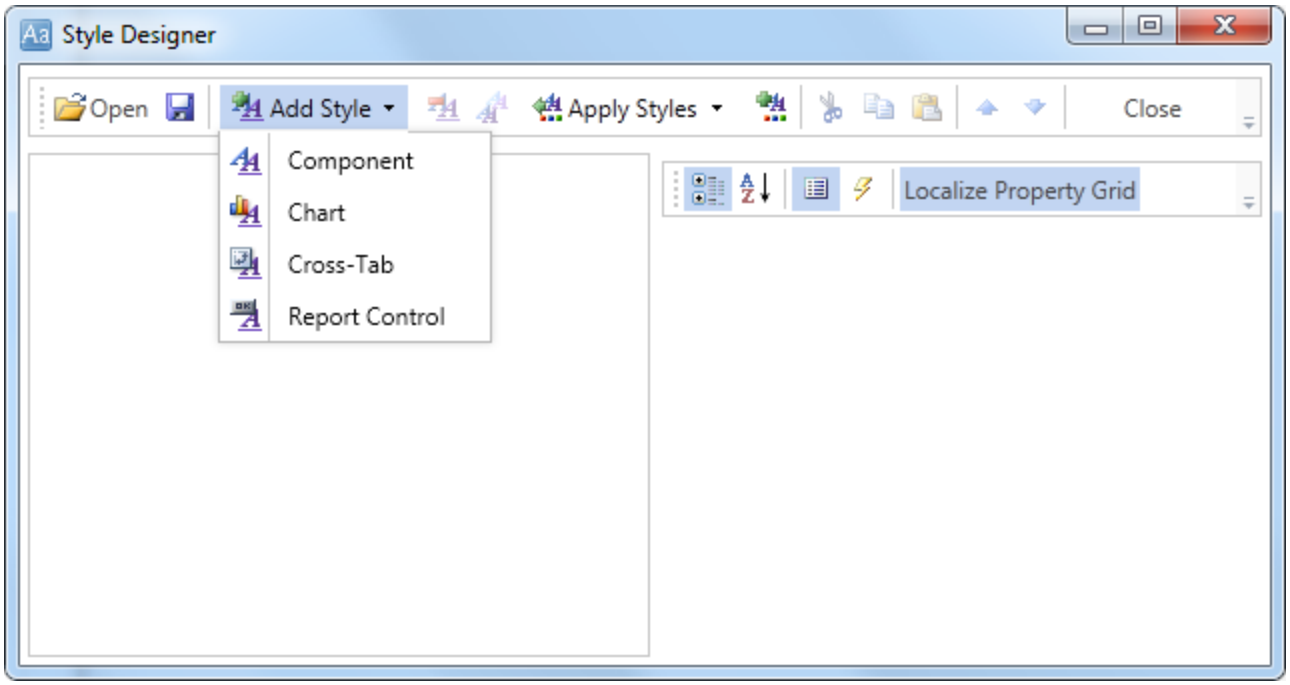
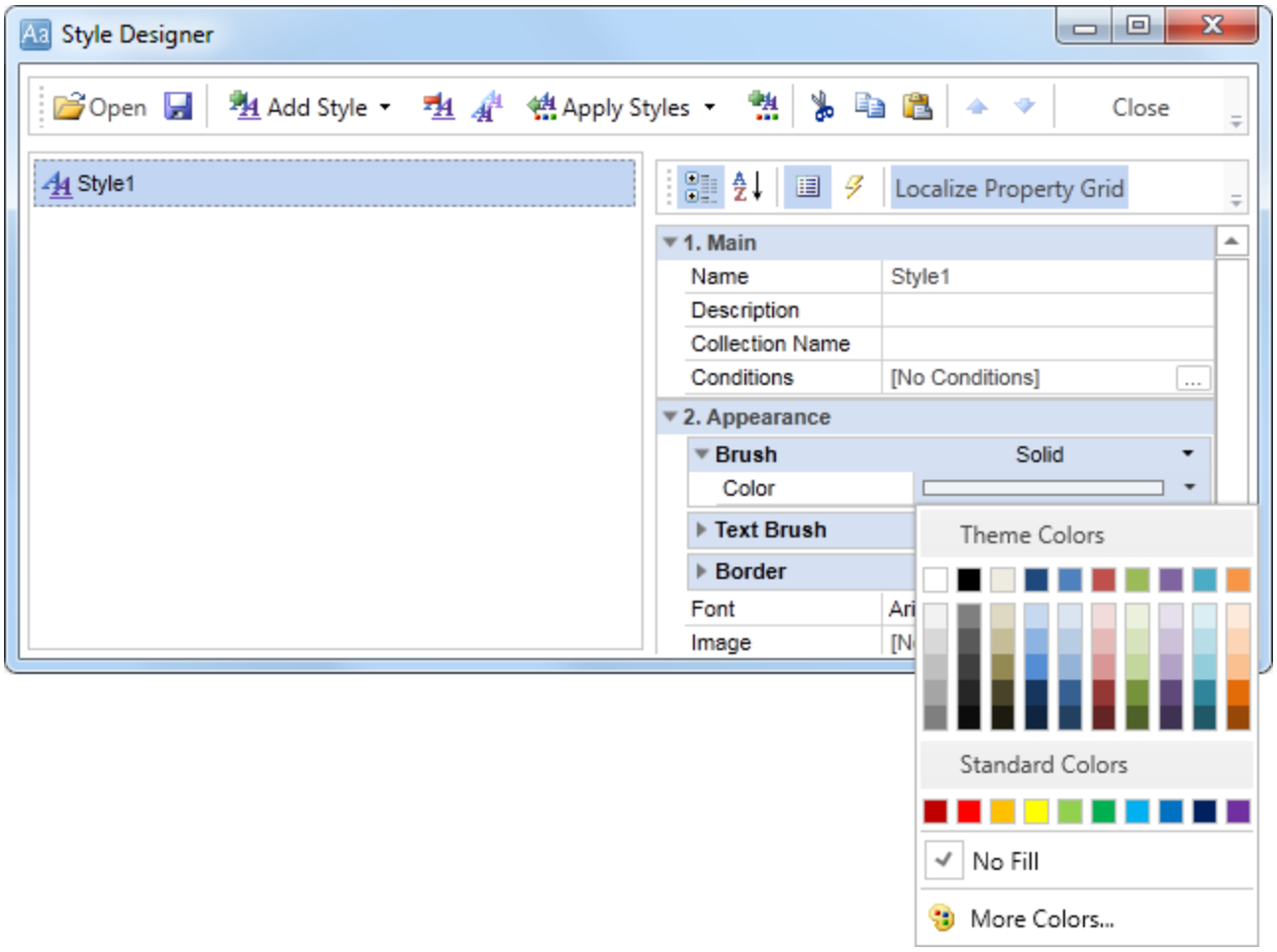



Click the **Add Style** button to start creating a style. Select **Component** from the drop down list. Set the **Brush.Color** property to change the background color of a row. The picture below shows a sample of the **Style Designer** with the list of values of the **Brush.Color** property:

© 2003-2013 Stimulsoft




Click **Close**. Then a new value in the list of **Even style** and **Odd style** properties (a style of a list of odd and even rows) will appear.

5. To render the report, click the **Preview** button or invoke the **Viewer**, pressing **F5** or clicking the **Preview** menu item. The picture below shows a sample of a rendered sub-report with alternative color of rows:

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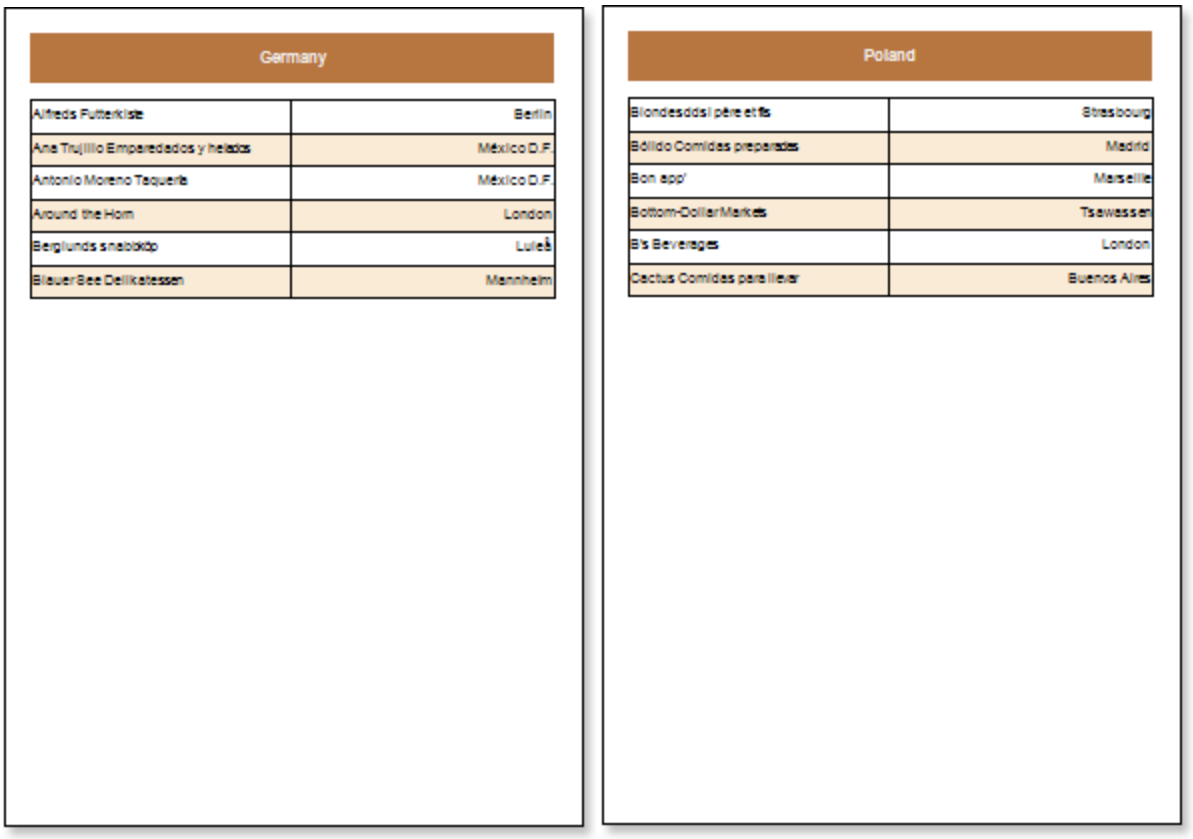


## 4.12 Side-by-Side Report

For better understanding this step-by-step instruction, please watch the video file.

The **Side-by-side** report is a type of independent data lists, located side by side. Do the following steps to create such a report:

1. Run the designer;
2. Connect data:
    2.1. Create **New Connection**;
    2.2. Create **New Data Source**;

3. Add **Sub-Report** components to a report on a page of the report template:

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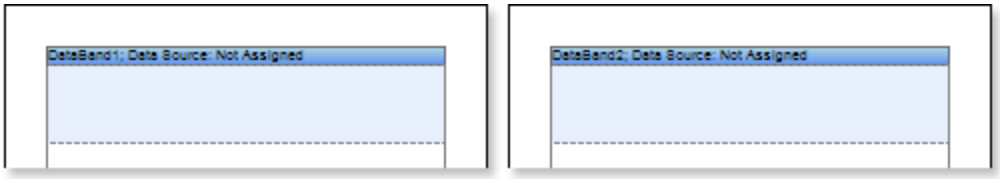
4. Edit **Sub-Report** components:
   4.1. Stretch **Sub-Report** components as seen on the picture below;
   4.2. Change the value of properties of **Sub-Report**. For example, set the **Keep Sub-Report Together** property to **true**, if you want the sub-report to be kept together;
   4.3. Change the background color of the component.

5. Go to the sub-report page;
6. Add two **DataBands** to the sub-report page. Add **DataBand1** to the **Sub Report1** and **DataBand2** to the **Sub Report2**;

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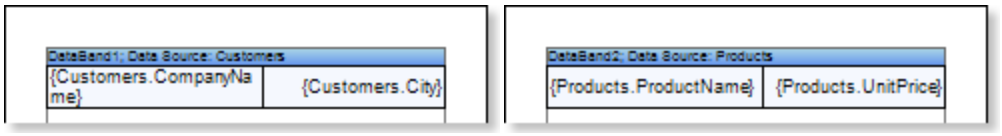
7. Edit the **DataBands**:
   7.1. Align the **DataBands** vertically;
   7.2. Change values of properties of the **DataBands**.
   7.3. Change background color of the band;
   7.4. Set **Borders**, if necessary;
   7.5. Change the border color.

8. Specify the data source for the **DataBand** using the **Data Source** property. For example, set the **Customers** data source for the **DataBand1**, and the **Products** data source for the **DataBand2**:

9. Put text components with expressions in the **DataBands**. Where an expression is a reference to a data field. For example, put the following expressions to the **DataBand1**: **{Customers.CompanyName}** and **{Customers.City}**. put the following expressions to the **DataBand2**: **{Products.ProductName}** and **{Products.UnitPrice}**;

10. Edit **Text** and **TextBoxes**:
   10.1. Drag the text component to the required place in the **DataBand**;
   10.2. Set the text font: size, style, color;
   10.3. Align text component vertically and horizontally;
   10.4. Set the background color of the text component;
   10.5. Align text in the component;
   10.6. Set values of the properties of text components. For example to set the **Word Wrap** property to **true**, if you want the text to be wrapped;
   10.7. Set **Borders** of a text component.
   10.8. Set the border color.




11. Click the **Preview** button or call **Viewer**, using an **F5** hot key or the **Preview** menu item to see how the report will look like:

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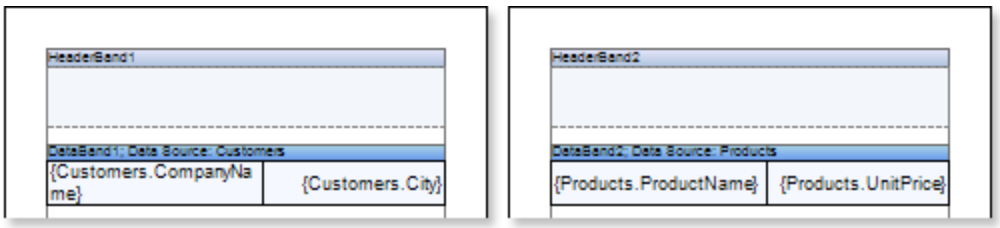
| | | | |
|---|---|---|---|
| Alfreds Futterkiste | Berlin | Chai | 18 |
| Ana Trujillo Emparedados y helados | México D.F. | Chang | 19 |
| Antonio Moreno Taquería | México D.F. | Aniseed Syrup | 10 |
| Around the Horn | London | Chef Anton's Cajun Seasoning | 22 |
| Berglunds snabbköp | Luleå | Chef Anton's Gumbo Mix | 21,35 |
| Blauer See Delikatessen | Mannheim | Grandma's Boysenberry Spread | 25 |
| Blondesddsl père et fils | Strasbourg | Uncle Bob's Organic Dried Pears | 30 |
| Bólido Comidas preparadas | Madrid | Northwoods Cranberry Sauce | 40 |
| Bon app' | Marseille | Mishi Kobe Niku | 97 |
| Bottom-Dollar Markets | Tsawassen | Ikura | 31 |
| B's Beverages | London | Queso Cabrales | 21 |
| Cactus Comidas para llevar | Buenos Aires | Queso Manchego La Pastora | 38 |
| Centro comercial Moctezuma | México D.F. | Konbu | 6 |
| Chop-suey Chinese | Bern | Tofu | 23,25 |
| Comércio Mineiro | Sao Paulo | Genen Shouyu | 15,5 |

As can be seen from the picture above, the report generator rendered the report, which was located in the nested page and placed it on the report page but not in the Sub-Report component.

12. Go back to the report template;
13. If necessary, add some bands to the report template, for example, the **HeaderBand**;
14. Edit this band:
    14.1. Align vertically this band;
    14.2. Set values of the properties of the **HeaderBand**, if necessary;
    14.3. Set the background color;
    14.4. Set **Borders** of a text component.
    14.5. Set the border color.




15. Put a text component with expression where the expression of the text component in the **HeaderBand** will be the page title.
16. Edit the text component:
    16.1. Drag the text component to the required place in the band;
    16.2. Set the text font: size, style, color;
    16.3. Align text component vertically and horizontally;
    16.4. Set the background color of the text component;

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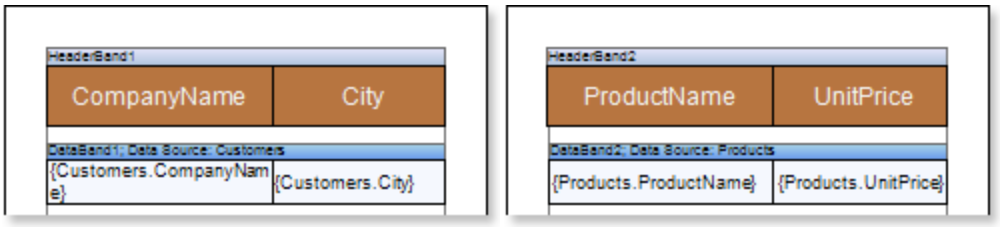
16.5. Align text in the component;
16.6. Set values of the properties of text components;
16.7. Set **Borders** of a text component.
16.8. Set the border color.




17. Click the **Preview** button or call **Viewer**, using an **F5** hot key or the **Preview** menu item to see how the report will look like:

| CompanyName | City | ProductName | UnitPrice |
|---|---|---|---|
| Alfreds Futterkiste | Berlin | Chai | 18 |
| Ana Trujillo Emparedados y helados | México D.F. | Chang | 19 |
| Antonio Moreno Taquería | México D.F. | Aniseed Syrup | 10 |
| Around the Horn | London | Chef Anton's Cajun Seasoning | 22 |
| Berglunds snabbköp | Luleå | Chef Anton's Gumbo Mix | 21,35 |
| Blauer See Delikatessen | Mannheim | Grandma's Boysenberry Spread | 25 |
| Blondesddsl père et fils | Strasbourg | Uncle Bob's Organic Dried Pears | 30 |
| Bólido Comidas preparadas | Madrid | Northwoods Cranberry Sauce | 40 |
| Bon app' | Marseille | Mishi Kobe Niku | 97 |
| Bottom-Dollar Markets | Tsawassen | Ikura | 31 |
| B's Beverages | London | Queso Cabrales | 21 |
| Cactus Comidas para llevar | Buenos Aires | Queso Manchego La Pastora | 38 |
| Centro comercial Moctezuma | México D.F. | Konbu | 6 |
| Chop-suey Chinese | Bern | Tofu | 23,25 |

## Adding styles

1. Go back to the report template;
2. Select the sub-report;
3. Select the **DataBand**;
4. Change values of **Even style** and **Odd style** properties. If values of these properties are not set, then select the **Edit Styles** in the list of values of these properties and, using **Style Designer**, create a new style. The picture below shows the **Style Designer**.

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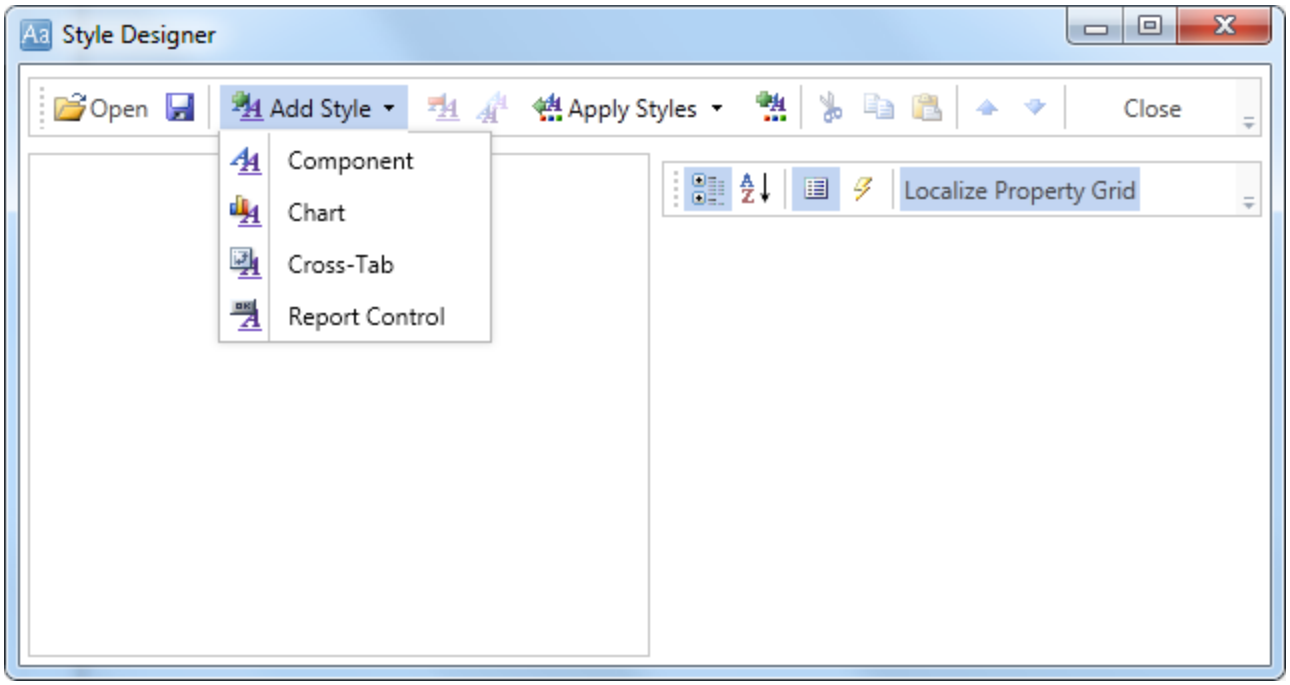


Click the **Add Style** button to start creating a style. Select **Component** from the drop down list. Set the **Brush.Color** property to change the background color of a row. The picture below shows a sample of the **Style Designer** with the list of values of the **Brush.Color** property:

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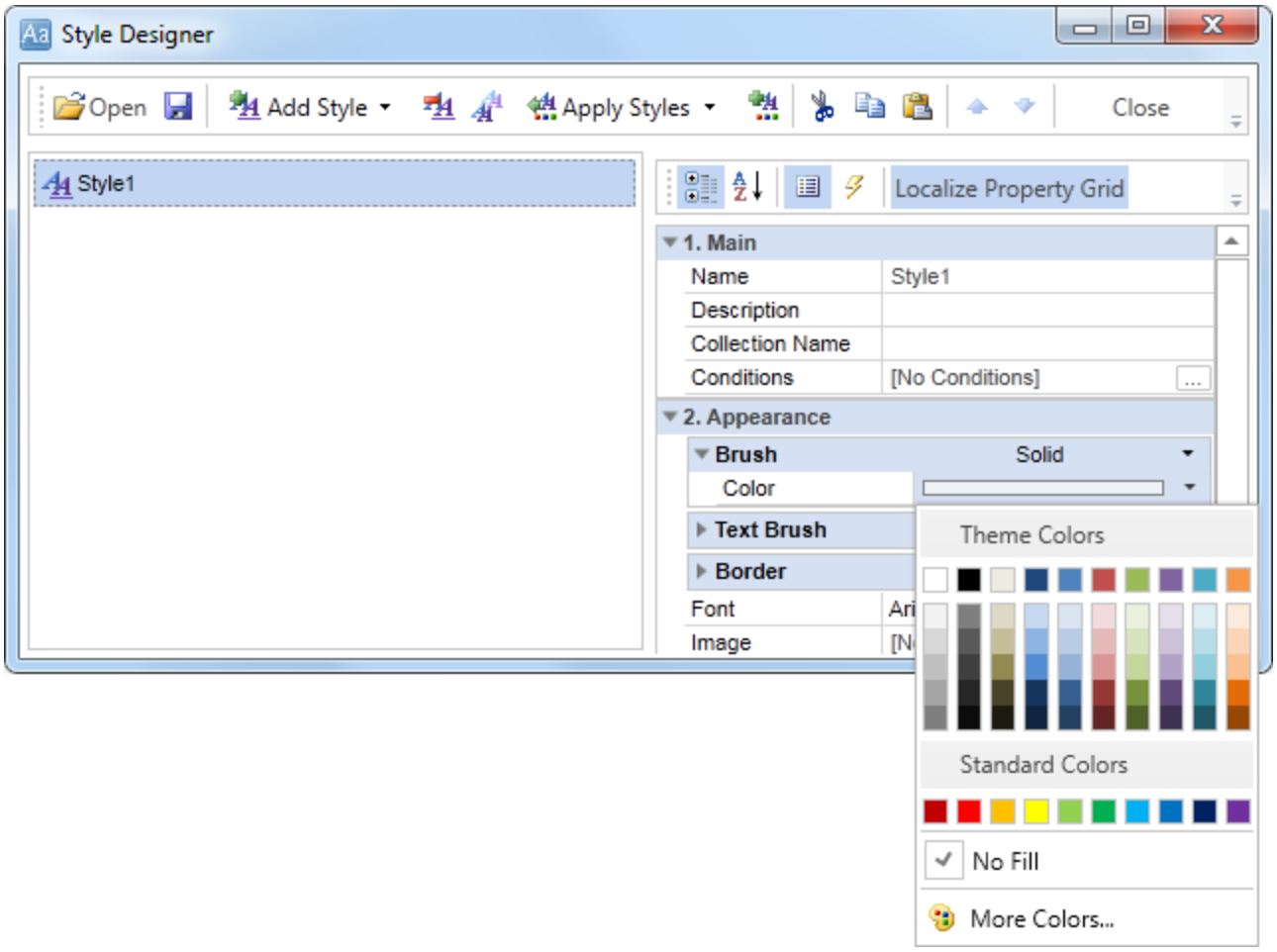


Click **Close**. Then a new value in the list of **Even style** and **Odd style** properties (a style of a list of odd and even rows) will appear.

5. To render the report, click the **Preview** button or invoke the **Viewer**, pressing **F5** or clicking the **Preview** menu item. The picture below shows a sample of a rendered side-by-side report with alternative color of rows:

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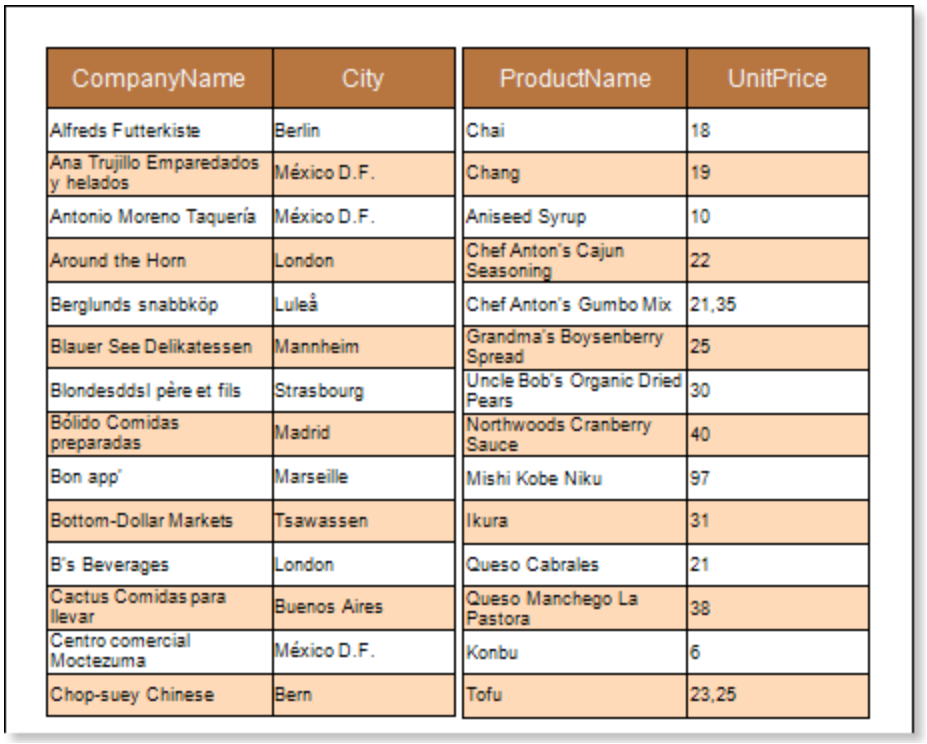

| CompanyName | City | ProductName | UnitPrice |
|---|---|---|---|
| Alfreds Futterkiste | Berlin | Chai | 18 |
| Ana Trujillo Emparedados y helados | México D.F. | Chang | 19 |
| Antonio Moreno Taquería | México D.F. | Aniseed Syrup | 10 |
| Around the Horn | London | Chef Anton's Cajun Seasoning | 22 |
| Berglunds snabbköp | Luleå | Chef Anton's Gumbo Mix | 21,35 |
| Blauer See Delikatessen | Mannheim | Grandma's Boysenberry Spread | 25 |
| Blondesddsl père et fils | Strasbourg | Uncle Bob's Organic Dried Pears | 30 |
| Bólido Comidas preparadas | Madrid | Northwoods Cranberry Sauce | 40 |
| Bon app' | Marseille | Mishi Kobe Niku | 97 |
| Bottom-Dollar Markets | Tsawassen | Ikura | 31 |
| B's Beverages | London | Queso Cabrales | 21 |
| Cactus Comidas para llevar | Buenos Aires | Queso Manchego La Pastora | 38 |
| Centro comercial Moctezuma | México D.F. | Konbu | 6 |
| Chop-suey Chinese | Bern | Tofu | 23,25 |

## 4.13 Report with Sub-Reports in Data Band

For better understanding this step-by-step instruction, please watch the video file.

Do the following steps to create a simple list report:

1. Run the designer;
2. Connect data:
   2.1. Create **New Connection**;
   2.2. Create **New Data Source**;

3. Put the **DataBand** on a page of a report template.

4. Edit **DataBand**:
   4.1. Align the **DataBand** by height;
   4.2. Change values of band properties. For example, set the **Can Break** property to **true**, if you wish the data band to be broken;
   4.3. Change the **DataBand** background color;

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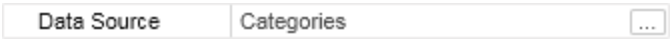
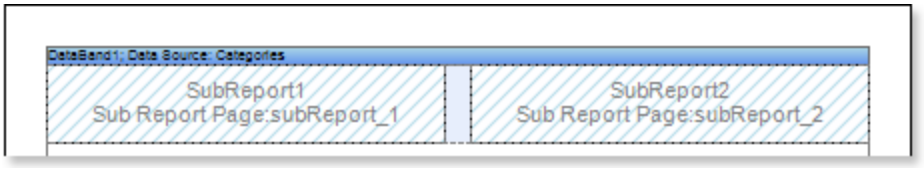
4.4. Enable **Borders** for the **DataBand**, if required;
4.5. Change the border color.

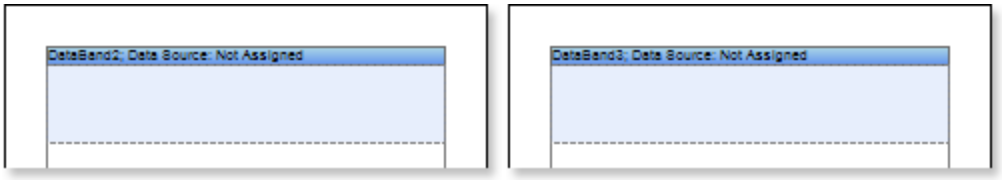
5. Define the data source for the **DataBand** using the **Data Source** property. For example, define the **Categories** data source for the **DataBand**:




6. Put **Sub-Report** components in the **DataBand**;
7. Edit the **Sub-Report** components:
7.1. Stretch the **Sub-Report** components as seen on the picture below;
7.2. Change the value of properties of **Sub-Reports**. For example, set the **Keep Sub-Report Together** property to **true**, if you want the sub-report to be kept together;;
7.3. Change the background color of the components.

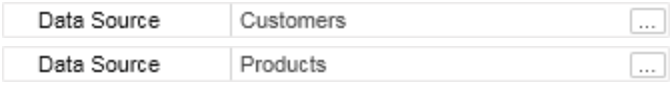



8. Go to the sub-report page;
9. Add two **DataBands** to the sub-report page. Add **DataBand1** to the **Sub Report1** and **DataBand2** to the **Sub Report2**;




10. Edit the **DataBands**:
10.1. Align the **DataBands** vertically;
10.2. Change values of properties of the **DataBands**.
10.3. Change background color of the band;
10.4. Set **Borders**, if necessary;
10.5. Change the border color.

11. Specify the data source for the **DataBand** using the **Data Source** property. For example, set the **Customers** data source for the **DataBand1**, and the **Products** data source for the **DataBand2**:




12. Put text components with expressions in the **DataBands**. Where an expression is a reference to a data field. For example, put the following expressions to the **DataBand1**: **{Customers.CompanyName}** and **{Customers.City}**. put the following expressions to the **DataBand2**: **{Products.ProductName}** and **{Products.UnitPrice}**;

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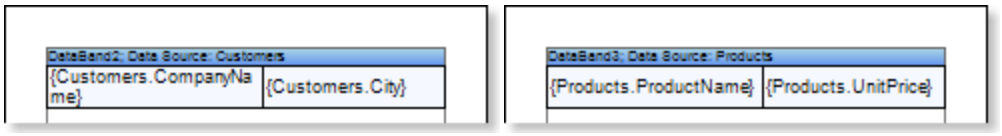
13. Edit **Text** and **TextBoxes**:
    13.1. Drag the text component to the required place in the **DataBand**;
    13.2. Set the text font: size, style, color;
    13.3. Align text component vertically and horizontally;
    13.4. Set the background color of the text component;
    13.5. Align text in the component;
    13.6. Set values of the properties of text components. For example to set the **Word Wrap** property to **true**, if you want the text to be wrapped;
    13.7. Set **Borders** of a text component.
    13.8. Set the border color.




14. Click the **Preview** button or call **Viewer**, using an **F5** hot key or the **Preview** menu item to see how the report will look like:

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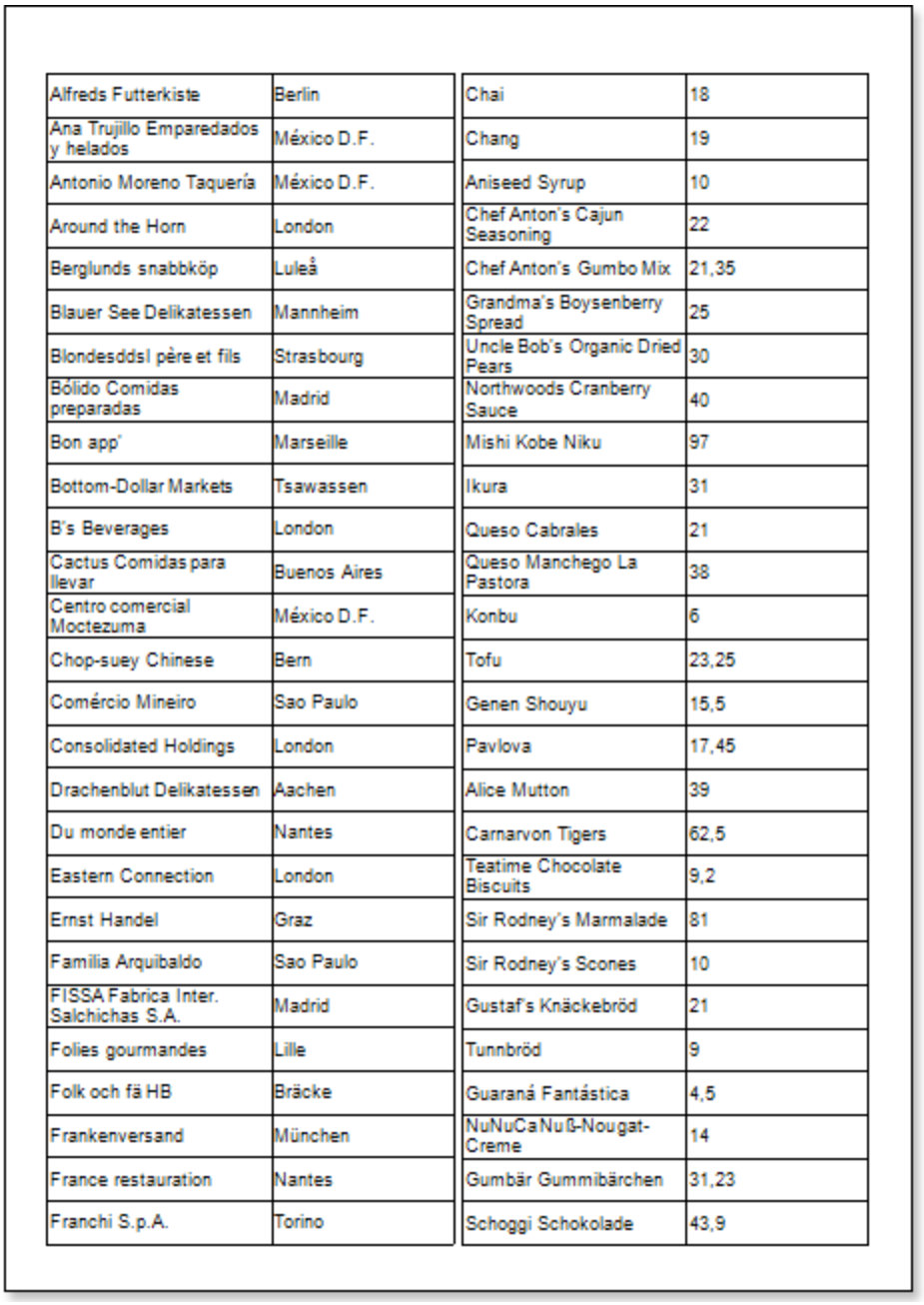

| | | | |
|---|---|---|---|
| Alfreds Futterkiste | Berlin | Chai | 18 |
| Ana Trujillo Emparedados y helados | México D.F. | Chang | 19 |
| Antonio Moreno Taquería | México D.F. | Aniseed Syrup | 10 |
| Around the Horn | London | Chef Anton's Cajun Seasoning | 22 |
| Berglunds snabbköp | Luleå | Chef Anton's Gumbo Mix | 21,35 |
| Blauer See Delikatessen | Mannheim | Grandma's Boysenberry Spread | 25 |
| Blondesddsl père et fils | Strasbourg | Uncle Bob's Organic Dried Pears | 30 |
| Bólido Comidas preparadas | Madrid | Northwoods Cranberry Sauce | 40 |
| Bon app' | Marseille | Mishi Kobe Niku | 97 |
| Bottom-Dollar Markets | Tsawassen | Ikura | 31 |
| B's Beverages | London | Queso Cabrales | 21 |
| Cactus Comidas para llevar | Buenos Aires | Queso Manchego La Pastora | 38 |
| Centro comercial Moctezuma | México D.F. | Konbu | 6 |
| Chop-suey Chinese | Bern | Tofu | 23,25 |
| Comércio Mineiro | Sao Paulo | Genen Shouyu | 15,5 |
| Consolidated Holdings | London | Pavlova | 17,45 |
| Drachenblut Delikatessen | Aachen | Alice Mutton | 39 |
| Du monde entier | Nantes | Carnarvon Tigers | 62,5 |
| Eastern Connection | London | Teatime Chocolate Biscuits | 9,2 |
| Ernst Handel | Graz | Sir Rodney's Marmalade | 81 |
| Familia Arquibaldo | Sao Paulo | Sir Rodney's Scones | 10 |
| FISSA Fabrica Inter. Salchichas S.A. | Madrid | Gustaf's Knäckebröd | 21 |
| Folies gourmandes | Lille | Tunnbröd | 9 |
| Folk och fä HB | Bräcke | Guaraná Fantástica | 4,5 |
| Frankenversand | München | NuNuCa Nuß-Nougat-Creme | 14 |
| France restauration | Nantes | Gumbär Gummibärchen | 31,23 |
| Franchi S.p.A. | Torino | Schoggi Schokolade | 43,9 |

15. Go back to the report template;
16. If necessary, add some bands to the report template, for example, the **HeaderBand**;
17. Edit this band:
    17.1. Align vertically this band;
    17.2. Set values of the properties of the **HeaderBand**, if necessary;
    17.3. Set the background color;
    17.4. Set **Borders** of a text component.
    17.5. Set the border color.

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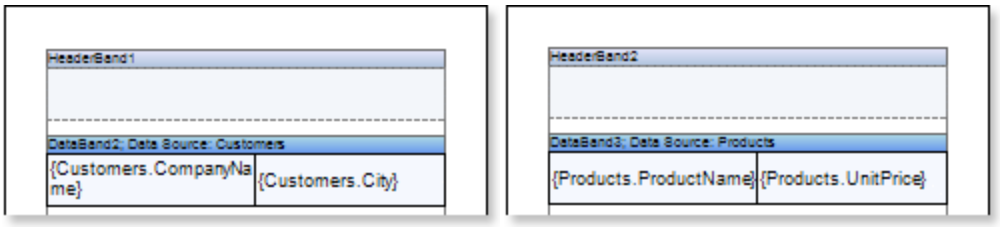


18. Put a text component with expression where the expression of the text component in the **HeaderBand** will be the page title.
19. Edit the text component:
    19.1. Drag the text component to the required place in the band;
    19.2. Set the text font: size, style, color;
    19.3. Align text component vertically and horizontally;
    19.4. Set the background color of the text component;
    19.5. Align text in the component;
    19.6. Set values of the properties of text components;
    19.7. Set **Borders** of a text component.
    19.8. Set the border color.

20. Click the **Preview** button or call **Viewer**, using an **F5** hot key or the **Preview** menu item to see how the report will look like:

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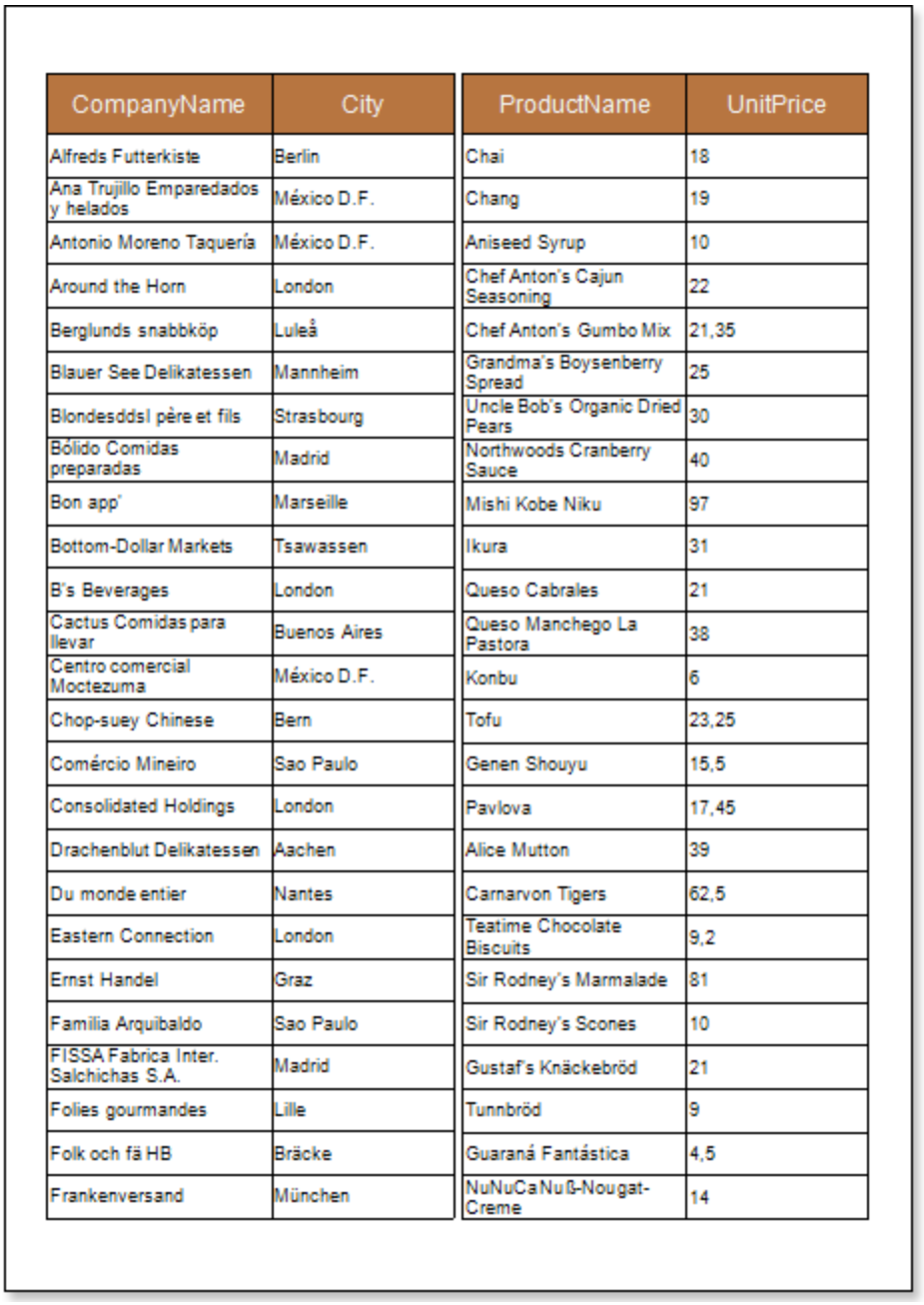

| CompanyName | City | ProductName | UnitPrice |
|---|---|---|---|
| Alfreds Futterkiste | Berlin | Chai | 18 |
| Ana Trujillo Emparedados y helados | México D.F. | Chang | 19 |
| Antonio Moreno Taquería | México D.F. | Aniseed Syrup | 10 |
| Around the Horn | London | Chef Anton's Cajun Seasoning | 22 |
| Berglunds snabbköp | Luleå | Chef Anton's Gumbo Mix | 21,35 |
| Blauer See Delikatessen | Mannheim | Grandma's Boysenberry Spread | 25 |
| Blondesddsl père et fils | Strasbourg | Uncle Bob's Organic Dried Pears | 30 |
| Bólido Comidas preparadas | Madrid | Northwoods Cranberry Sauce | 40 |
| Bon app' | Marseille | Mishi Kobe Niku | 97 |
| Bottom-Dollar Markets | Tsawassen | Ikura | 31 |
| B's Beverages | London | Queso Cabrales | 21 |
| Cactus Comidas para llevar | Buenos Aires | Queso Manchego La Pastora | 38 |
| Centro comercial Moctezuma | México D.F. | Konbu | 6 |
| Chop-suey Chinese | Bern | Tofu | 23,25 |
| Comércio Mineiro | Sao Paulo | Genen Shouyu | 15,5 |
| Consolidated Holdings | London | Pavlova | 17,45 |
| Drachenblut Delikatessen | Aachen | Alice Mutton | 39 |
| Du monde entier | Nantes | Carnarvon Tigers | 62,5 |
| Eastern Connection | London | Teatime Chocolate Biscuits | 9,2 |
| Ernst Handel | Graz | Sir Rodney's Marmalade | 81 |
| Familia Arquibaldo | Sao Paulo | Sir Rodney's Scones | 10 |
| FISSA Fabrica Inter. Salchichas S.A. | Madrid | Gustaf's Knäckebröd | 21 |
| Folies gourmandes | Lille | Tunnbröd | 9 |
| Folk och fä HB | Bräcke | Guaraná Fantástica | 4,5 |
| Frankenversand | München | NuNuCa Nuß-Nougat-Creme | 14 |

## Adding styles

1. Go back to the report template;
2. Select the sub-report;
3. Select the **DataBand**;
4. Change values of **Even style** and **Odd style** properties. If values of these properties are not set, then select the **Edit Styles** in the list of values of these properties and, using **Style Designer**, create a new style. The picture below shows the **Style Designer**.

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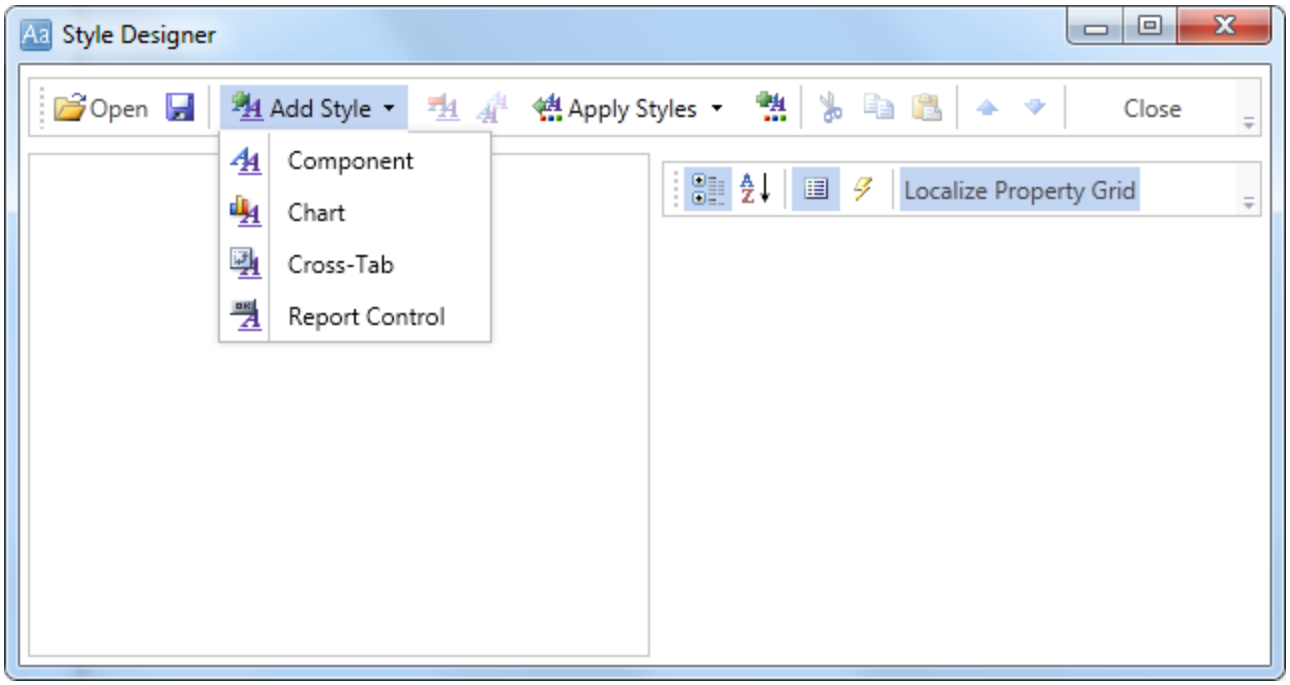


Click the **Add Style** button to start creating a style. Select **Component** from the drop down list. Set the **Brush.Color** property to change the background color of a row. The picture below shows a sample of the **Style Designer** with the list of values of the **Brush.Color** property:

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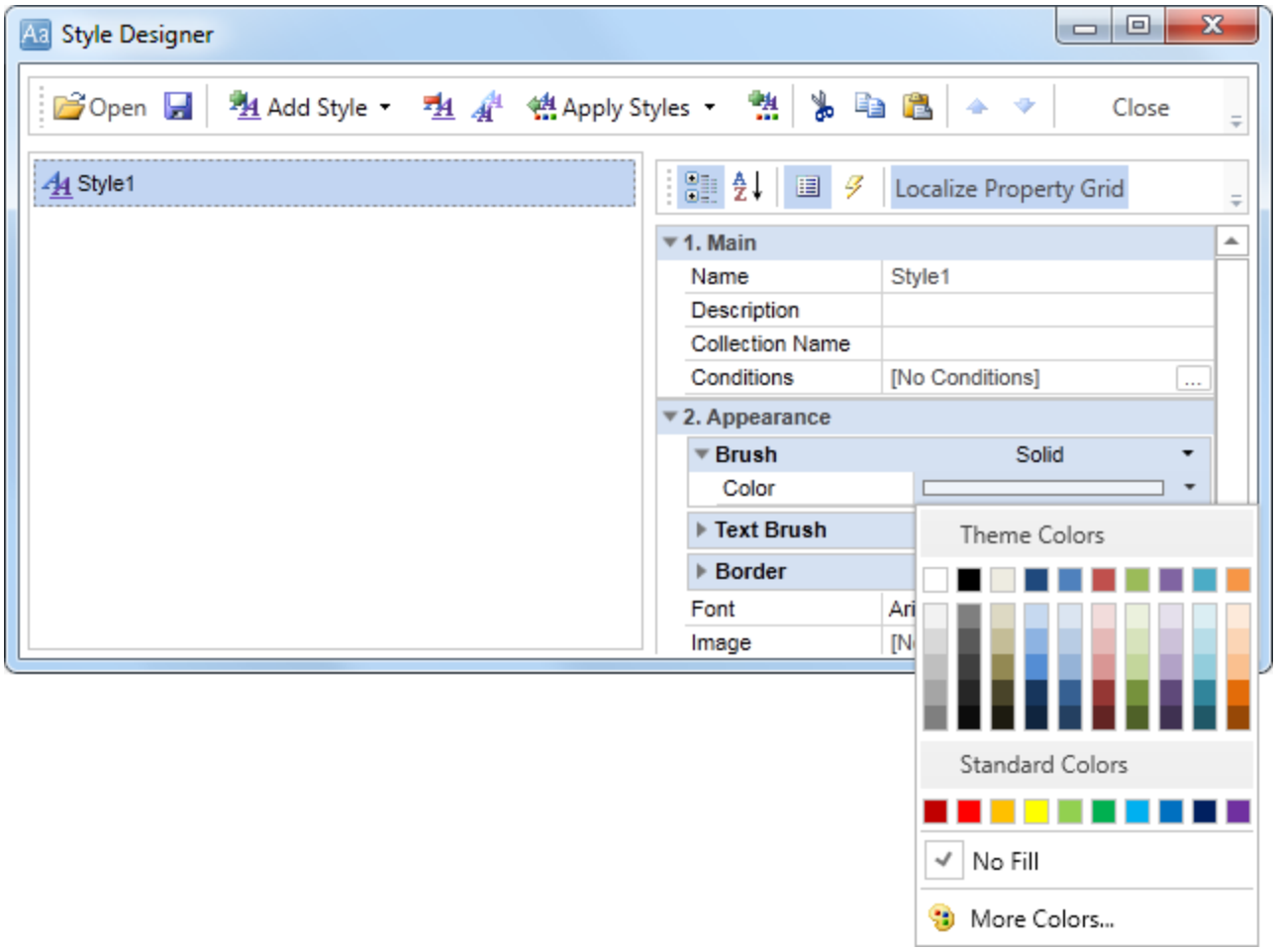


Click **Close**. Then a new value in the list of **Even style** and **Odd style** properties (a style of a list of odd and even rows) will appear.

5. To render the report, click the **Preview** button or invoke the **Viewer**, pressing **F5** or clicking the **Preview** menu item. The picture below shows a sample of a rendered report with sub-report and alternative color of rows:

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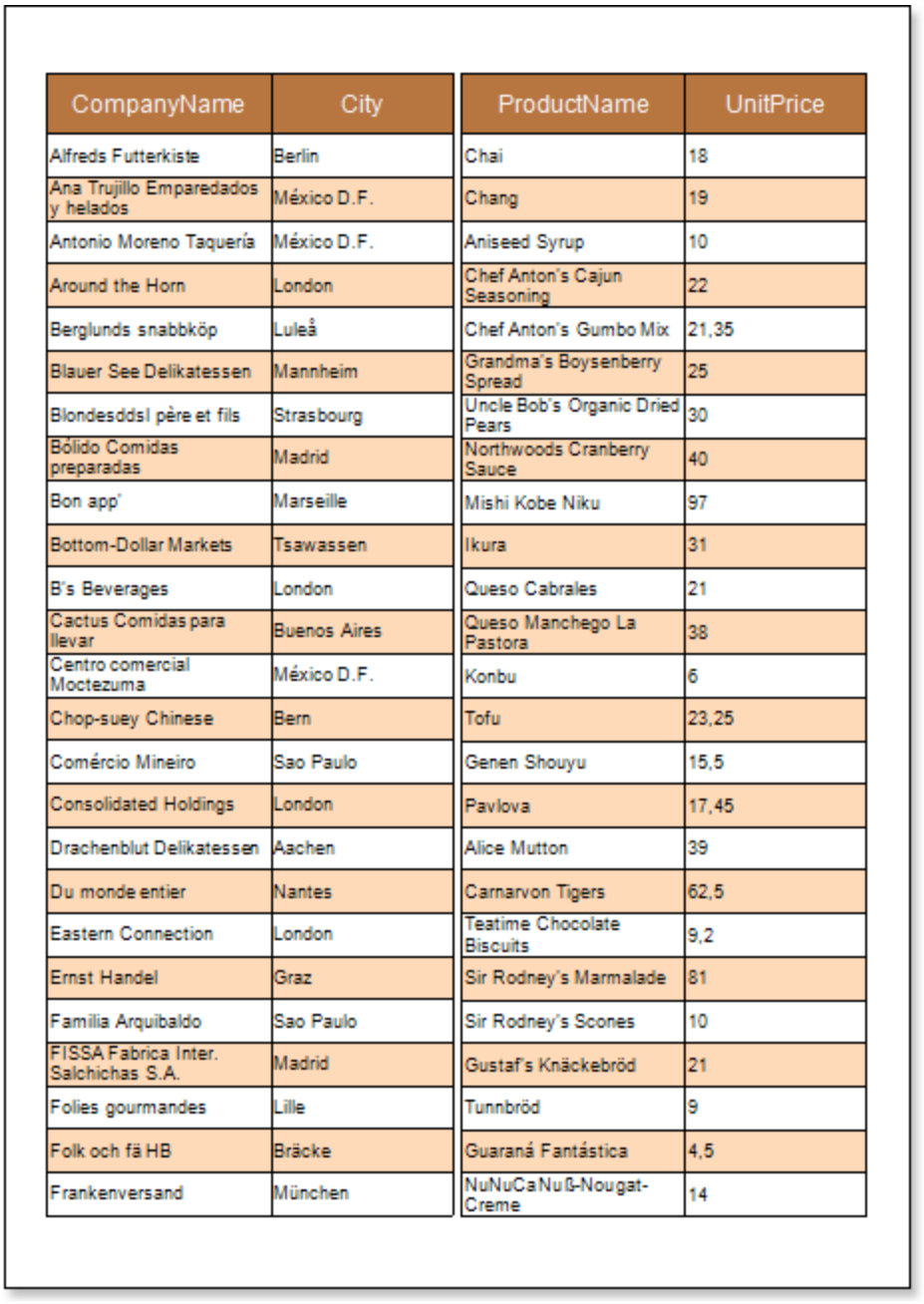

| CompanyName | City | ProductName | UnitPrice |
|---|---|---|---|
| Alfreds Futterkiste | Berlin | Chai | 18 |
| Ana Trujillo Emparedados y helados | México D.F. | Chang | 19 |
| Antonio Moreno Taquería | México D.F. | Aniseed Syrup | 10 |
| Around the Horn | London | Chef Anton's Cajun Seasoning | 22 |
| Berglunds snabbköp | Luleå | Chef Anton's Gumbo Mix | 21,35 |
| Blauer See Delikatessen | Mannheim | Grandma's Boysenberry Spread | 25 |
| Blondesddsl père et fils | Strasbourg | Uncle Bob's Organic Dried Pears | 30 |
| Bólido Comidas preparadas | Madrid | Northwoods Cranberry Sauce | 40 |
| Bon app' | Marseille | Mishi Kobe Niku | 97 |
| Bottom-Dollar Markets | Tsawassen | Ikura | 31 |
| B's Beverages | London | Queso Cabrales | 21 |
| Cactus Comidas para llevar | Buenos Aires | Queso Manchego La Pastora | 38 |
| Centro comercial Moctezuma | México D.F. | Konbu | 6 |
| Chop-suey Chinese | Bern | Tofu | 23,25 |
| Comércio Mineiro | Sao Paulo | Genen Shouyu | 15,5 |
| Consolidated Holdings | London | Pavlova | 17,45 |
| Drachenblut Delikatessen | Aachen | Alice Mutton | 39 |
| Du monde entier | Nantes | Carnarvon Tigers | 62,5 |
| Eastern Connection | London | Teatime Chocolate Biscuits | 9,2 |
| Ernst Handel | Graz | Sir Rodney's Marmalade | 81 |
| Familia Arquibaldo | Sao Paulo | Sir Rodney's Scones | 10 |
| FISSA Fabrica Inter. Salchichas S.A. | Madrid | Gustaf's Knäckebröd | 21 |
| Folies gourmandes | Lille | Tunnbröd | 9 |
| Folk och fä HB | Bräcke | Guaraná Fantástica | 4,5 |
| Frankenversand | München | NuNuCa Nuß-Nougat-Creme | 14 |

## 4.14 Master-Detail Report and Sub-Reports

For better understanding this step-by-step instruction, please watch the video file.

Do the following steps to create a **Master-Detail** report with sub-reports:

1. Run the designer;
2. Connect data:

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2.1. Create **New Connection**;
2.2. Create **New Data Source**;

3. Create **Relation** between data sources. If the relation will not be created and/or the **Relation** property of the **Detail** data source will not be filled, then, for **Master** entry, all **Detail** entries will be output;
4. Put the **DataBand1** on a page of a report template:

5. Edit **DataBand1**:
5.1. Align the **DataBand1** by height;
5.2. Change values of band properties. For example, set the **Can Break** property to **true**, if you wish the data band to be broken;
5.3. Change the **DataBand1** background color;
5.4. Enable **Borders** for the **DataBand1**, if required;
5.5. Change the border color.

6. Define the data source for the **DataBand1** using the **Data Source** property. For example, define the **Categories** data source for the **DataBand2:**

7. Put text components with expressions in the **DataBand1**. Where an expression is a reference to a data field. For example, put the text component with the following expression in the **DataBand1** ( **Master** component): **{Categories.CategoryName}**;

8. Edit **Text** and **TextBoxes**:
8.1. Drag the text component to the required place in the **DataBand1**;
8.2. Set the text font: size, style, color;
8.3. Align text component vertically and horizontally;
8.4. Set the background color of the text component;
8.5. Align text in the component;
8.6. Set values of the properties of text components. For example to set the **Word Wrap** property to **true**, if you want the text to be wrapped;
8.7. Set **Borders** of a text component.
8.8. Set the border color.

9. Put a **Sub-Report** component in the **DataBand1**;

10. Edit the **Sub-Report** components:
10.1. Stretch the **Sub-Report** components as seen on the picture below;
10.2. Change the value of properties of **Sub-Reports**. For example, set the **Keep Sub-Report Together** property to **true**, if you want the sub-report to be kept together;;

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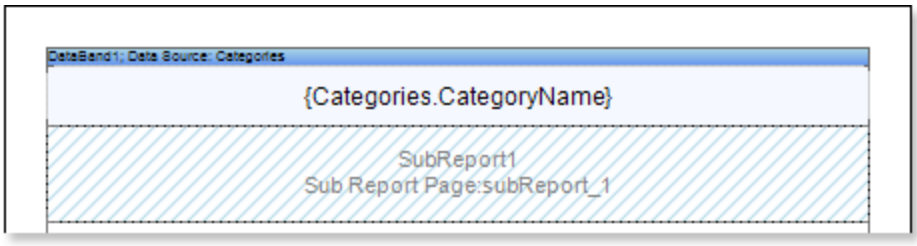
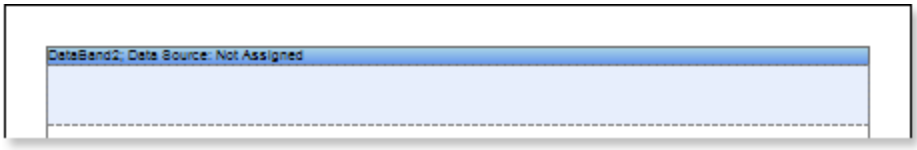
10.3. Change the background color of the components.




11. Go to the sub-report page;
12. Add to the **DataBand2** to the sub-report page.




13. Edit **DataBand2**:
    13.1. Align the **DataBand2** by height;
    13.2. Change values of band properties. For example, set the **Can Break** property to **true**, if you wish the data band to be broken;
    13.3. Change the **DataBand2** background color;
    13.4. Enable **Borders** for the **DataBand2**, if required;
    13.5. Change the border color.

14. Define the data source for the **DataBand1** using the **Data Source** property. For example, define the **Products** data source for the **DataBand2**:

15. Define the **Master** component in a report. In our case set the **DataBand1** as a **Master** component for the **DataBand2**;
16. Fill the **Data Relation** property of the **DataBand**, that is the **Detail** component, i.e. in this case for the **DataBand2**;
17. Put text components with expressions in the **DataBand1**. Where an expression is a reference to a data field. For example, put the text component with the following expression in the **DataBand2**: **{Products.ProductName}** and **{Products.UnitPrice}**;
18. Edit **Text** and **TextBoxes**:
    18.1. Drag the text component to the required place in the **DataBand2**;
    18.2. Set the text font: size, style, color;
    18.3. Align text component vertically and horizontally;
    18.4. Set the background color of the text component;
    18.5. Align text in the component;
    18.6. Set values of the properties of text components. For example to set the **Word Wrap** property to **true**, if you want the text to be wrapped;
    18.7. Set **Borders** of a text component.
    18.8. Set the border color.

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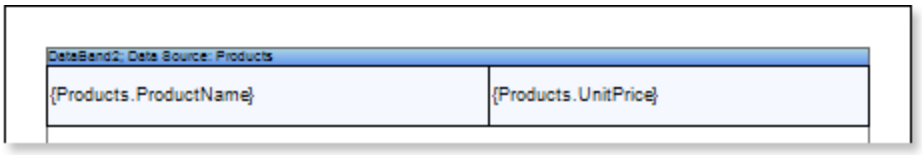
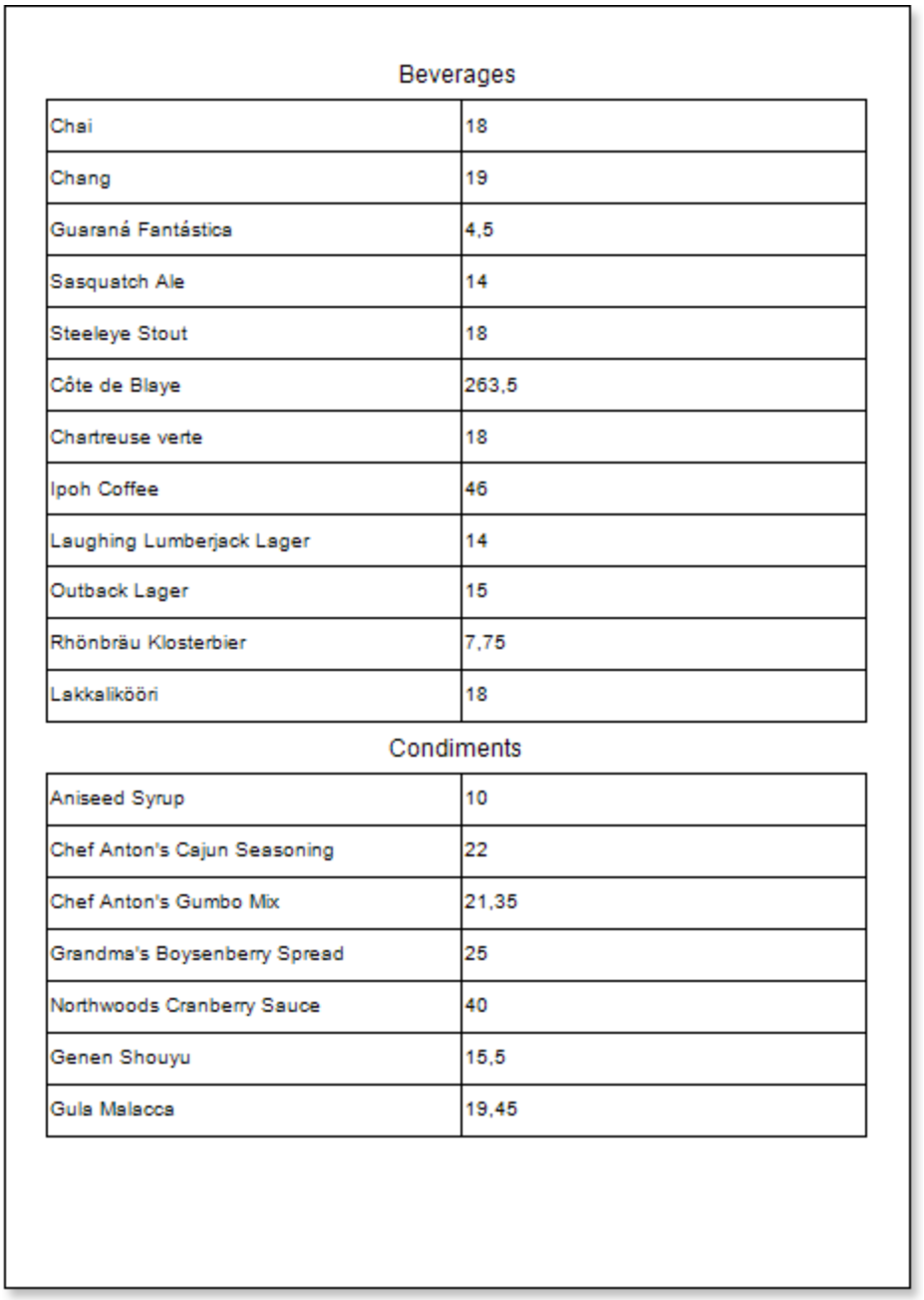



19. Click the **Preview** button or call **Viewer**, using an **F5** hot key or the **Preview** menu item to see how the report will look like:



Beverages

| | |
|---|---|
| Chai | 18 |
| Chang | 19 |
| Guaraná Fantástica | 4,5 |
| Sasquatch Ale | 14 |
| Steeleye Stout | 18 |
| Côte de Blaye | 263,5 |
| Chartreuse verte | 18 |
| Ipoh Coffee | 46 |
| Laughing Lumberjack Lager | 14 |
| Outback Lager | 15 |
| Rhönbräu Klosterbier | 7,75 |
| Lakkalikööri | 18 |

Condiments

| | |
|---|---|
| Aniseed Syrup | 10 |
| Chef Anton's Cajun Seasoning | 22 |
| Chef Anton's Gumbo Mix | 21,35 |
| Grandma's Boysenberry Spread | 25 |
| Northwoods Cranberry Sauce | 40 |
| Genen Shouyu | 15,5 |
| Gula Malacca | 19,45 |

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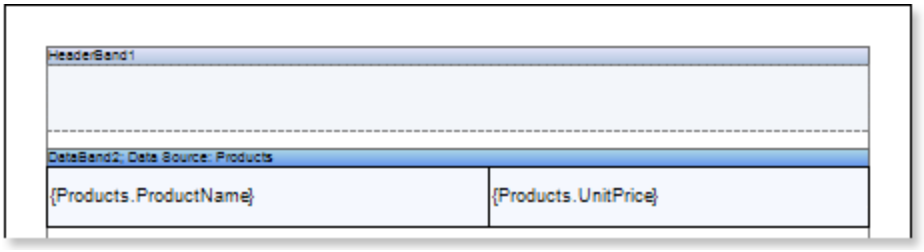
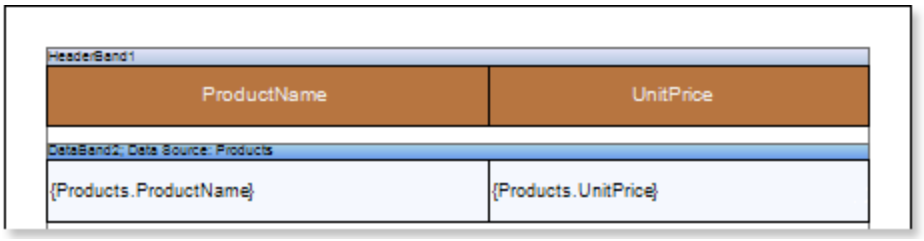
20. Go back to the report template;
21. If necessary, add some bands to the report template, for example, the **HeaderBand**;
22. Edit this band:
    22.1. Align vertically this band;
    22.2. Set values of the properties of the **HeaderBand**, if necessary;
    22.3. Set the background color;
    22.4. Set **Borders** of a text component.
    22.5. Set the border color.




23. Put a text component with expression where the expression of the text component in the **HeaderBand** will be the page title.
24. Edit the text component:
    24.1. Drag the text component to the required place in the band;
    24.2. Set the text font: size, style, color;
    24.3. Align text component vertically and horizontally;
    24.4. Set the background color of the text component;
    24.5. Align text in the component;
    24.6. Set values of the properties of text components;
    24.7. Set **Borders** of a text component.
    24.8. Set the border color.




25. Click the **Preview** button or call **Viewer**, using an **F5** hot key or the **Preview** menu item to see how the report will look like:

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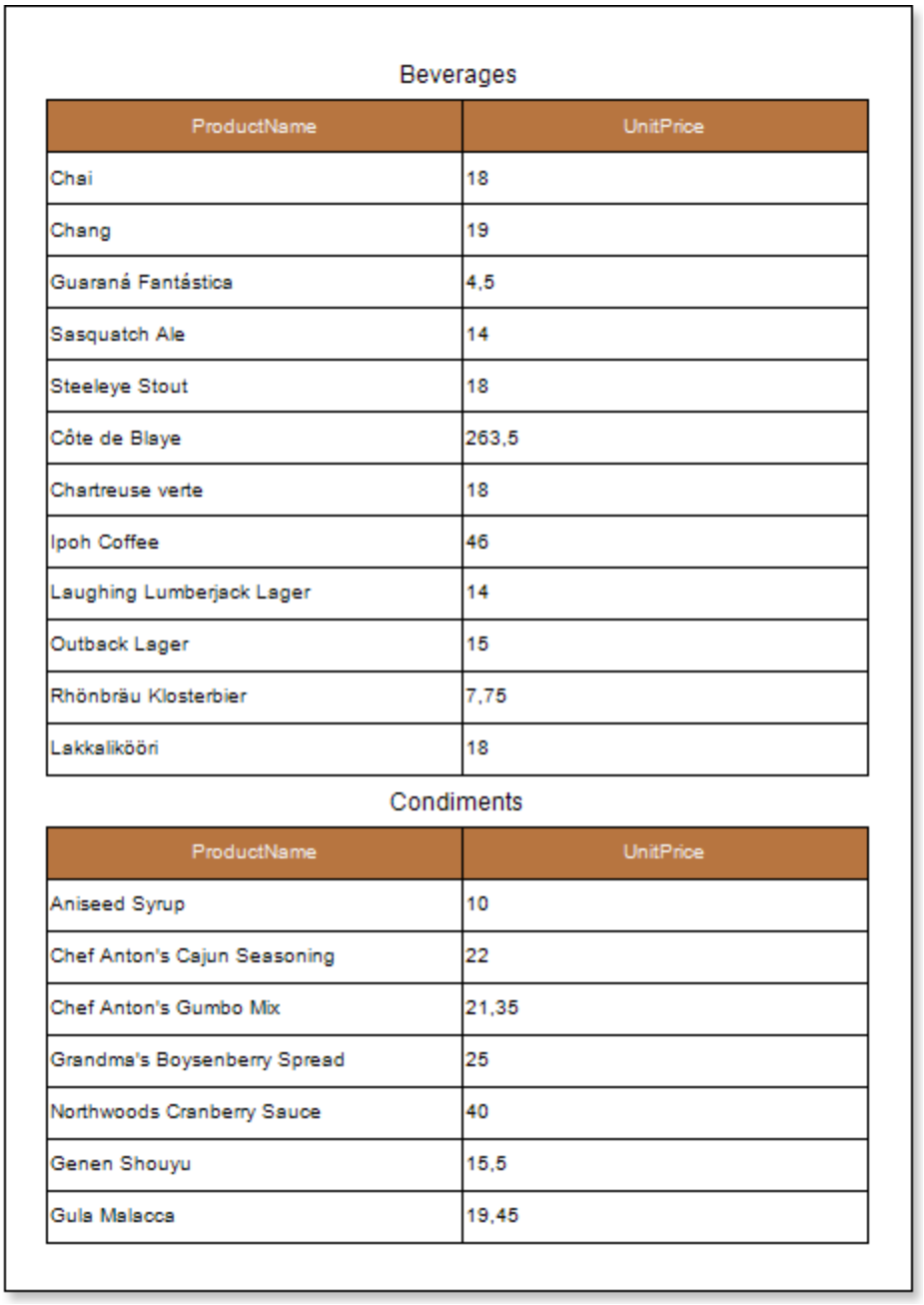

Beverages

| ProductName | UnitPrice |
|---|---|
| Chai | 18 |
| Chang | 19 |
| Guaraná Fantástica | 4,5 |
| Sasquatch Ale | 14 |
| Steeleye Stout | 18 |
| Côte de Blaye | 263,5 |
| Chartreuse verte | 18 |
| Ipoh Coffee | 46 |
| Laughing Lumberjack Lager | 14 |
| Outback Lager | 15 |
| Rhönbräu Klosterbier | 7,75 |
| Lakkalikööri | 18 |

Condiments

| ProductName | UnitPrice |
|---|---|
| Aniseed Syrup | 10 |
| Chef Anton's Cajun Seasoning | 22 |
| Chef Anton's Gumbo Mix | 21,35 |
| Grandma's Boysenberry Spread | 25 |
| Northwoods Cranberry Sauce | 40 |
| Genen Shouyu | 15,5 |
| Gula Malacca | 19,45 |

## Adding styles

1. Go back to the report template;
2. Select the sub-report;
3. Select the **DataBand**;
4. Change values of **Even style** and **Odd style** properties. If values of these properties are not set, then select the **Edit Styles** in the list of values of these properties and, using **Style Designer**, create a new style. The picture below shows the **Style Designer**.

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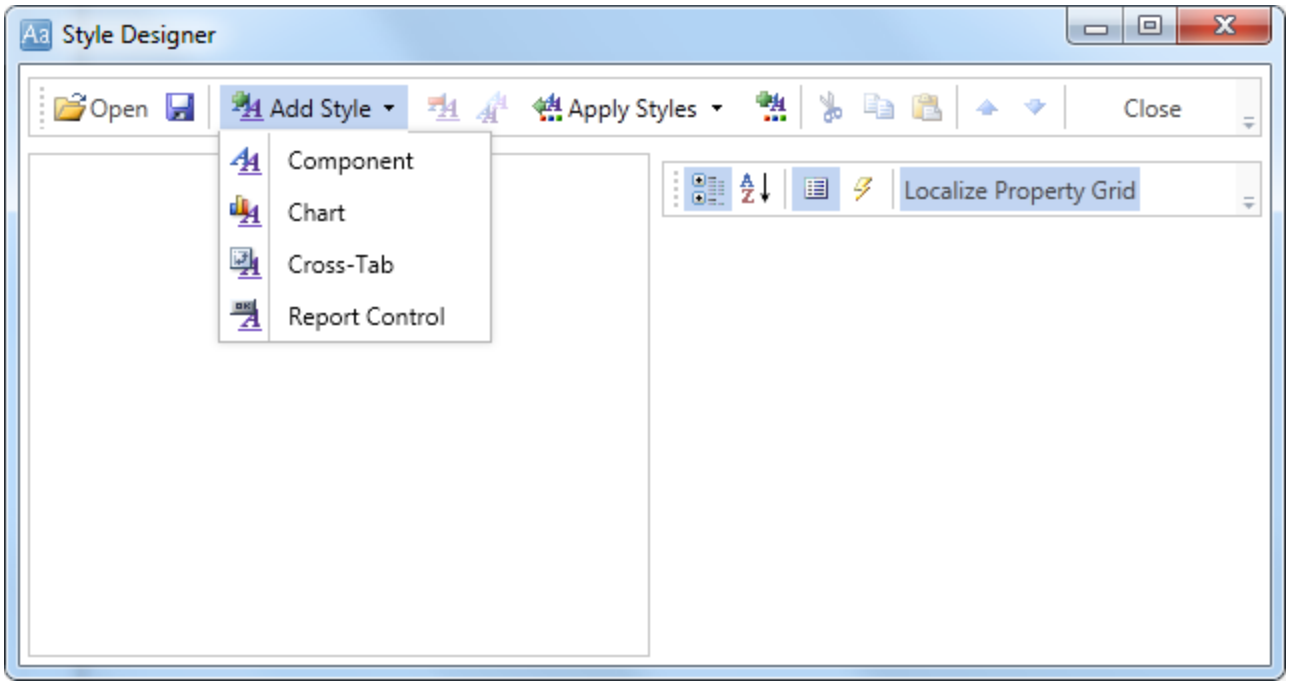


Click the **Add Style** button to start creating a style. Select **Component** from the drop down list. Set the **Brush.Color** property to change the background color of a row. The picture below shows a sample of the **Style Designer** with the list of values of the **Brush.Color** property:

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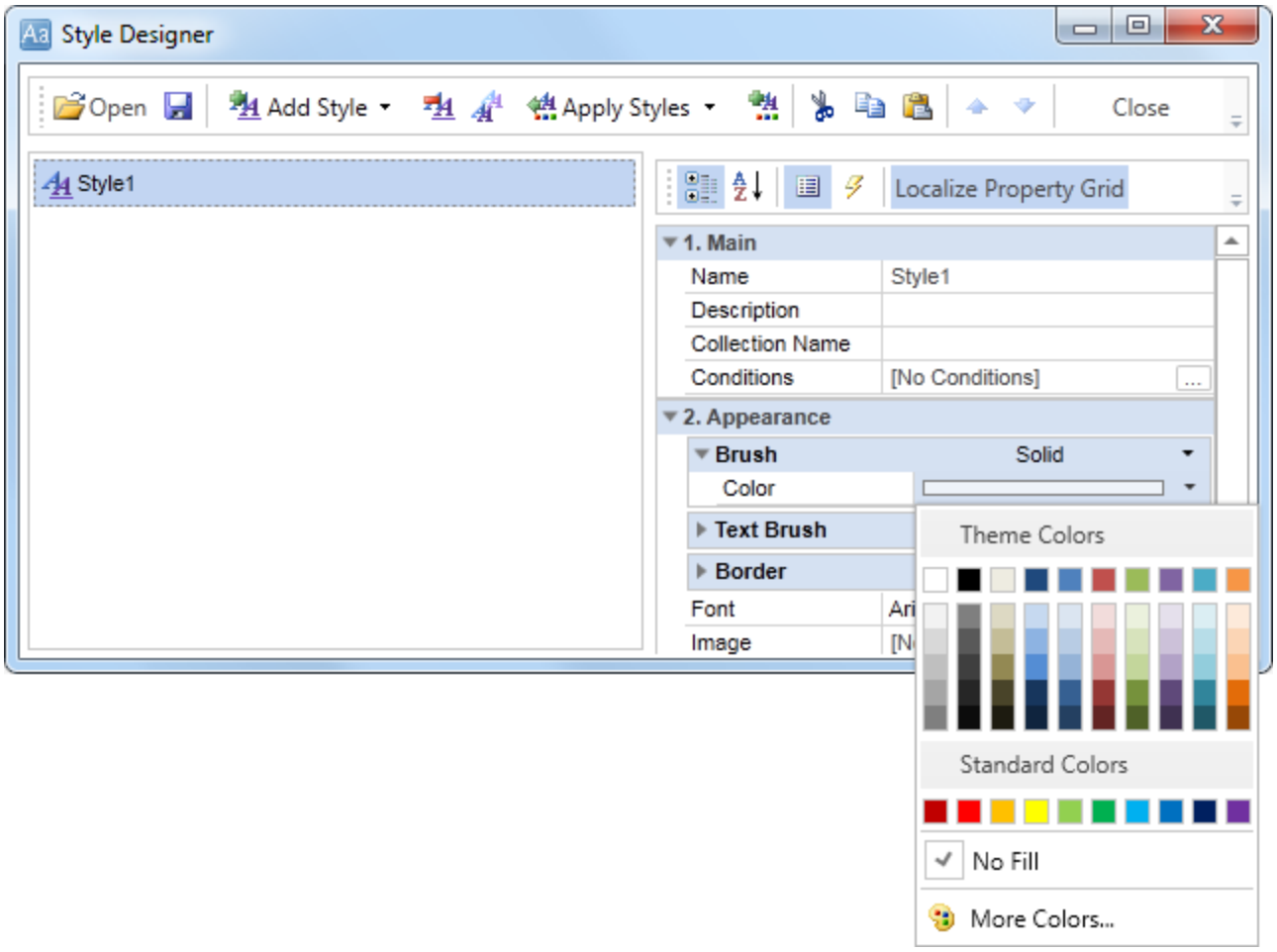


Click **Close**. Then a new value in the list of **Even style** and **Odd style** properties (a style of a list of odd and even rows) will appear.

5. To render the report, click the **Preview** button or invoke the **Viewer**, pressing **F5** or clicking the **Preview** menu item. The picture below shows a sample of a rendered "**master-detail report with sub-report**" with alternative color of rows:

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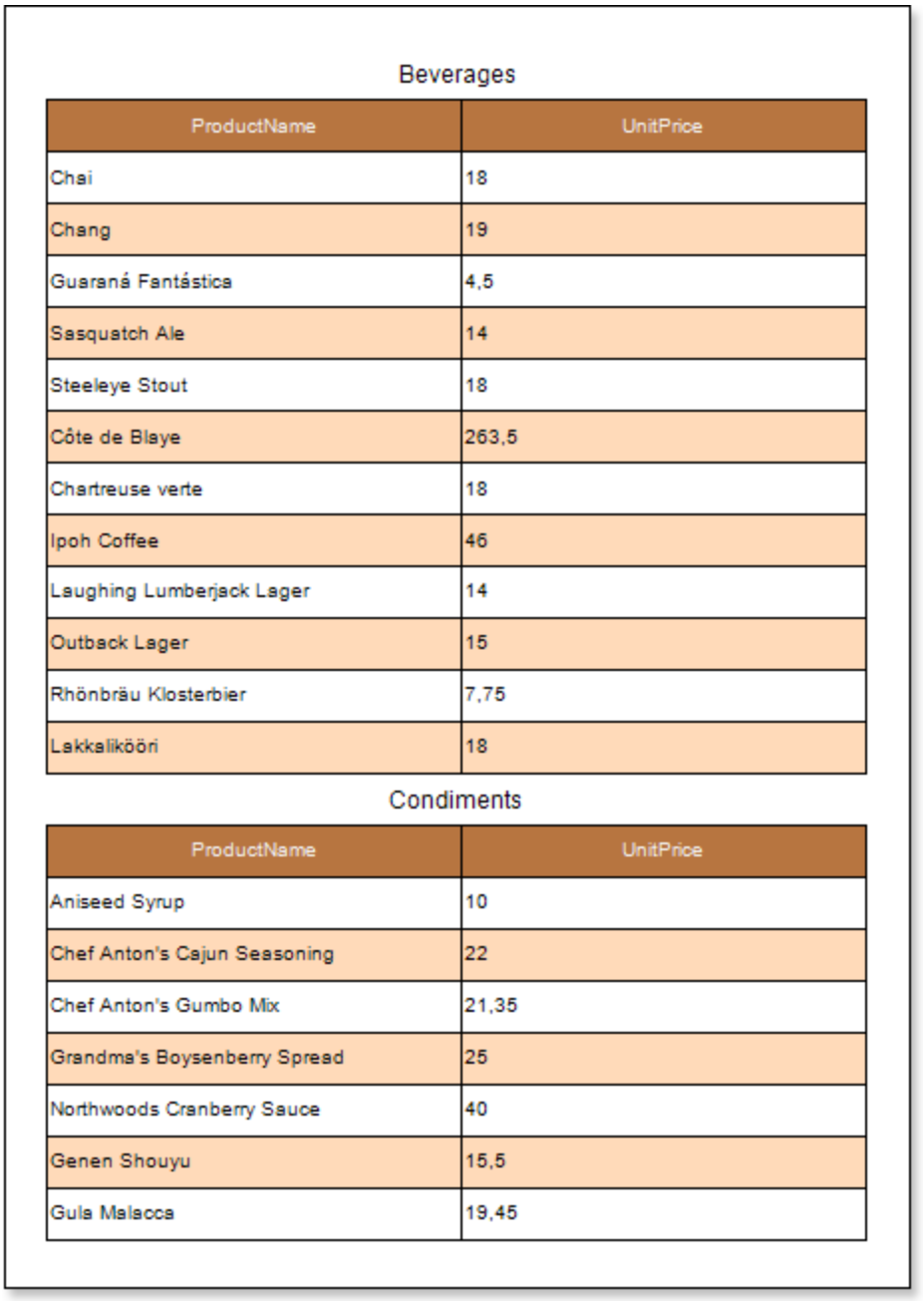

Beverages

| ProductName | UnitPrice |
|---|---|
| Chai | 18 |
| Chang | 19 |
| Guaraná Fantástica | 4,5 |
| Sasquatch Ale | 14 |
| Steeleye Stout | 18 |
| Côte de Blaye | 263,5 |
| Chartreuse verte | 18 |
| Ipoh Coffee | 46 |
| Laughing Lumberjack Lager | 14 |
| Outback Lager | 15 |
| Rhönbräu Klosterbier | 7,75 |
| Lakkalikööri | 18 |

Condiments

| ProductName | UnitPrice |
|---|---|
| Aniseed Syrup | 10 |
| Chef Anton's Cajun Seasoning | 22 |
| Chef Anton's Gumbo Mix | 21,35 |
| Grandma's Boysenberry Spread | 25 |
| Northwoods Cranberry Sauce | 40 |
| Genen Shouyu | 15,5 |
| Gula Malacca | 19,45 |

## 4.15 Report with Empty Band

For better understanding this step-by-step instruction, please watch the video file.

The **EmptyBand** is used to fill free space at the bottom of a page. This tutorial describes how to create a report with the **EmptyBand**:

1. Run the designer;

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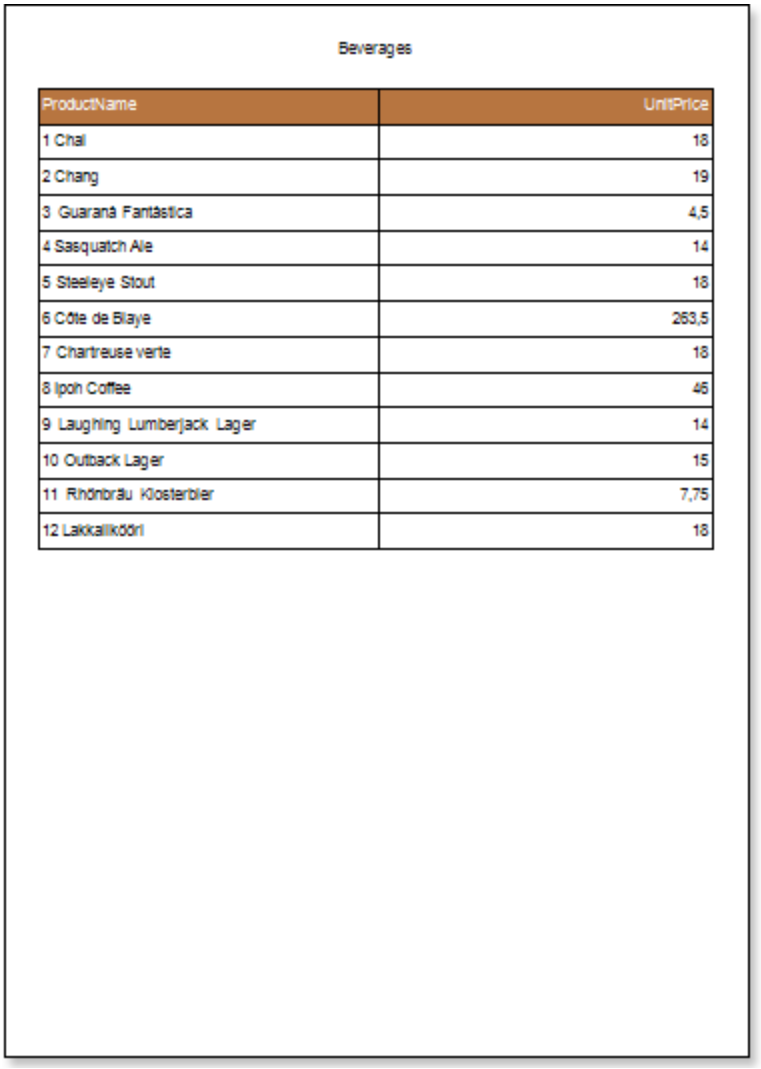
2. Connect the data:
   2.1. Create a **New Connection**;
   2.2. Create a **New Data Source**;

3. Design a report or load a previously saved one. Consider creating a report with the **EmptyBand** on the base of the **Master-Detail** report. Suppose there is a **Master-Detail** report in which data is printed on half of a page, then to fill the empty space you can use the **EmptyBand**. The picture below shows the rendered **Master-Detail** report:



Beverages

| ProductName | UnitPrice |
|---|---|
| 1 Chai | 18 |
| 2 Chang | 19 |
| 3 Guaraná Fantástica | 4,5 |
| 4 Sasquatch Ale | 14 |
| 5 Steeleye Stout | 18 |
| 6 Côte de Blaye | 263,5 |
| 7 Chartreuse verte | 18 |
| 8 Ipoh Coffee | 46 |
| 9 Laughing Lumberjack Lager | 14 |
| 10 Outback Lager | 15 |
| 11 Rhönbräu Klosterbier | 7,75 |
| 12 Lakkalikööri | 18 |

4. Go back to the **Master-Detail** report template.

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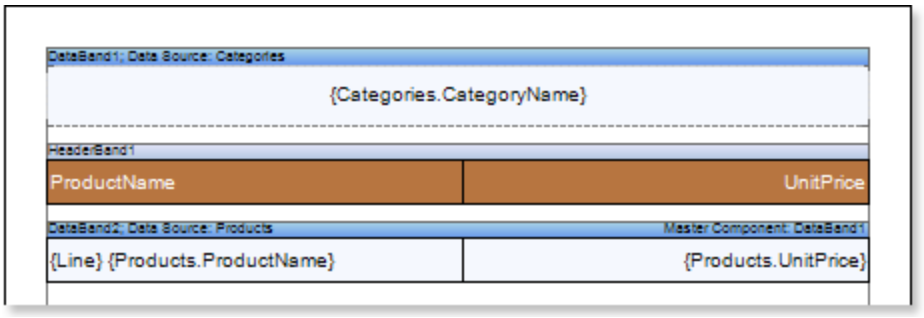
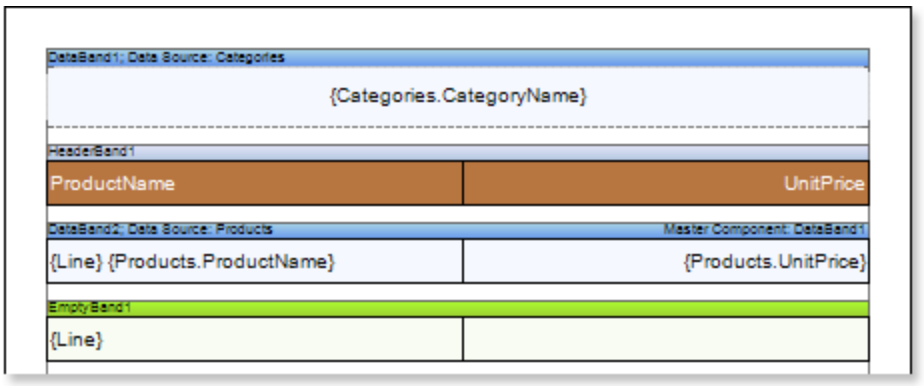



5. Add the **EmptyBand** in the report template;
6. Edit the **EmptyBand**:
6.1. Align it by height;
6.2. Change the value of required properties. For example, set the **CanGrow** property to **true**, if you want the band be grown;
6.3. Set the background color of the **EmptyBand**;
6.4. If necessary, set **Borders** of the EmptyBand);

7. Put text components with an expression in the **EmptyBand**. Where the expression is a reference to the data field. For example, put a text component with the expression: **{Line}**;
8. Edit **Text** and **TextBox** component:
   8.1. Drag and drop the text component in the **EmptyBand**;
   8.2. Change parameters of the text font: size, type, color;
   8.3. Align the text component by width and height;
   8.4. Change the background of the text component;
   8.5. Align text in the text component;
   8.6. Change the value of properties of the text component. For example, set the **WordWrap** property to **true**, if you need a text to be wrapped;
   8.7. Enable **Borders** for the text component, if required.
   8.8. Change the border color.




9. Click the **Preview** button or invoke the **Viewer**, pressing **F5** or clicking the **Preview** menu item. The picture below shows a sample of the report:

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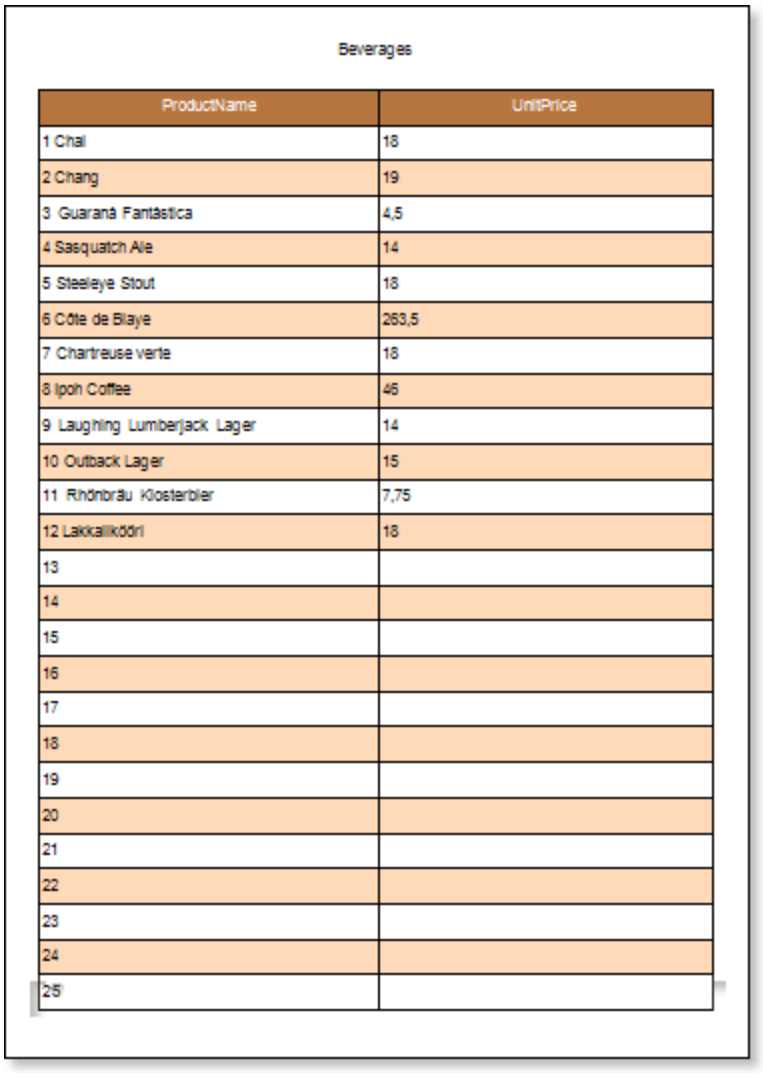

Beverages

| ProductName | UnitPrice |
|---|---|
| 1 Chai | 18 |
| 2 Chang | 19 |
| 3 Guaraná Fantástica | 4,5 |
| 4 Sasquatch Ale | 14 |
| 5 Steeleye Stout | 18 |
| 6 Côte de Blaye | 263,5 |
| 7 Chartreuse verte | 18 |
| 8 Ipoh Coffee | 46 |
| 9 Laughing Lumberjack Lager | 14 |
| 10 Outback Lager | 15 |
| 11 Rhönbräu Klosterbier | 7,75 |
| 12 Lakkalikööri | 18 |
| 13 | |
| 14 | |
| 15 | |
| 16 | |
| 17 | |
| 18 | |
| 19 | |
| 20 | |
| 21 | |
| 22 | |
| 23 | |
| 24 | |
| 25 | |

As can be seen in the picture above blank lines will be numbered and output in the report.

## Adding styles

1. Go back to the report template;
2. Select the **DataBand**;
3. Change values of **Even style** and **Odd style** properties. If values of these properties are not set, then select the **Edit Styles** in the list of values of these properties and, using **Style Designer**, create a new style. The picture below shows the **Style Designer**.

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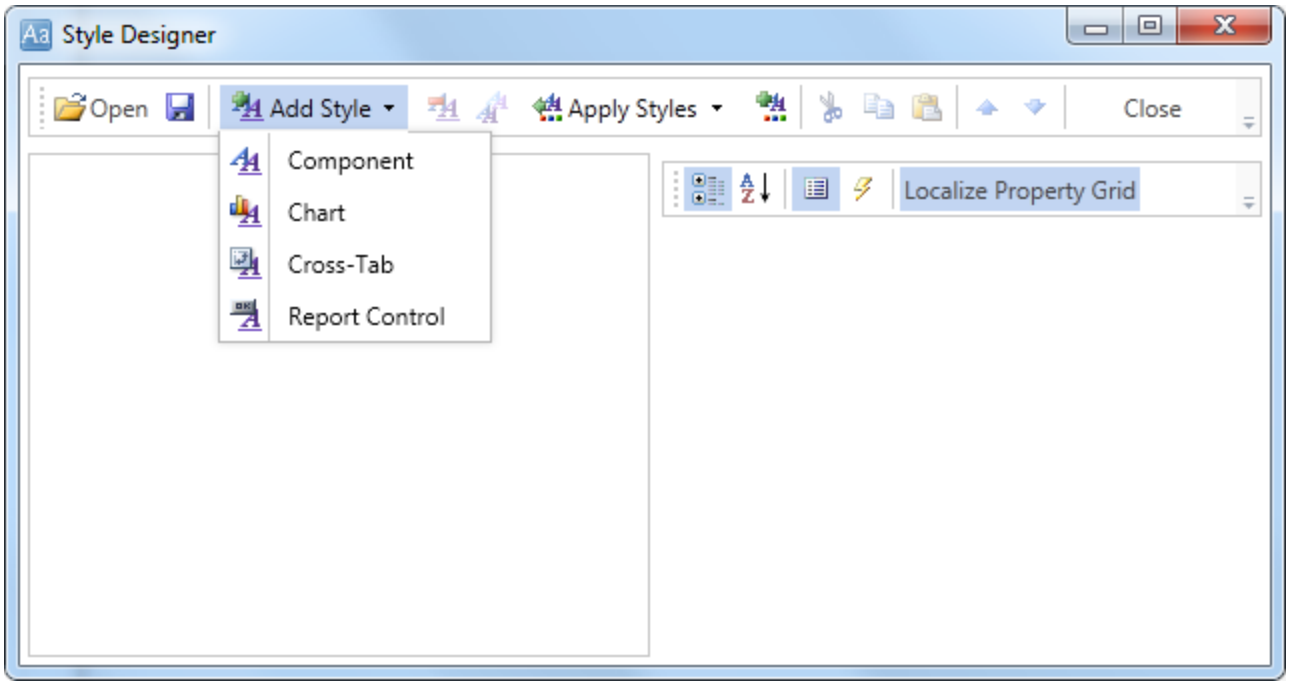


Click the **Add Style** button to start creating a style. Select **Component** from the drop down list. Set the **Brush.Color** property to change the background color of a row. The picture below shows a sample of the **Style Designer** with the list of values of the **Brush.Color** property:

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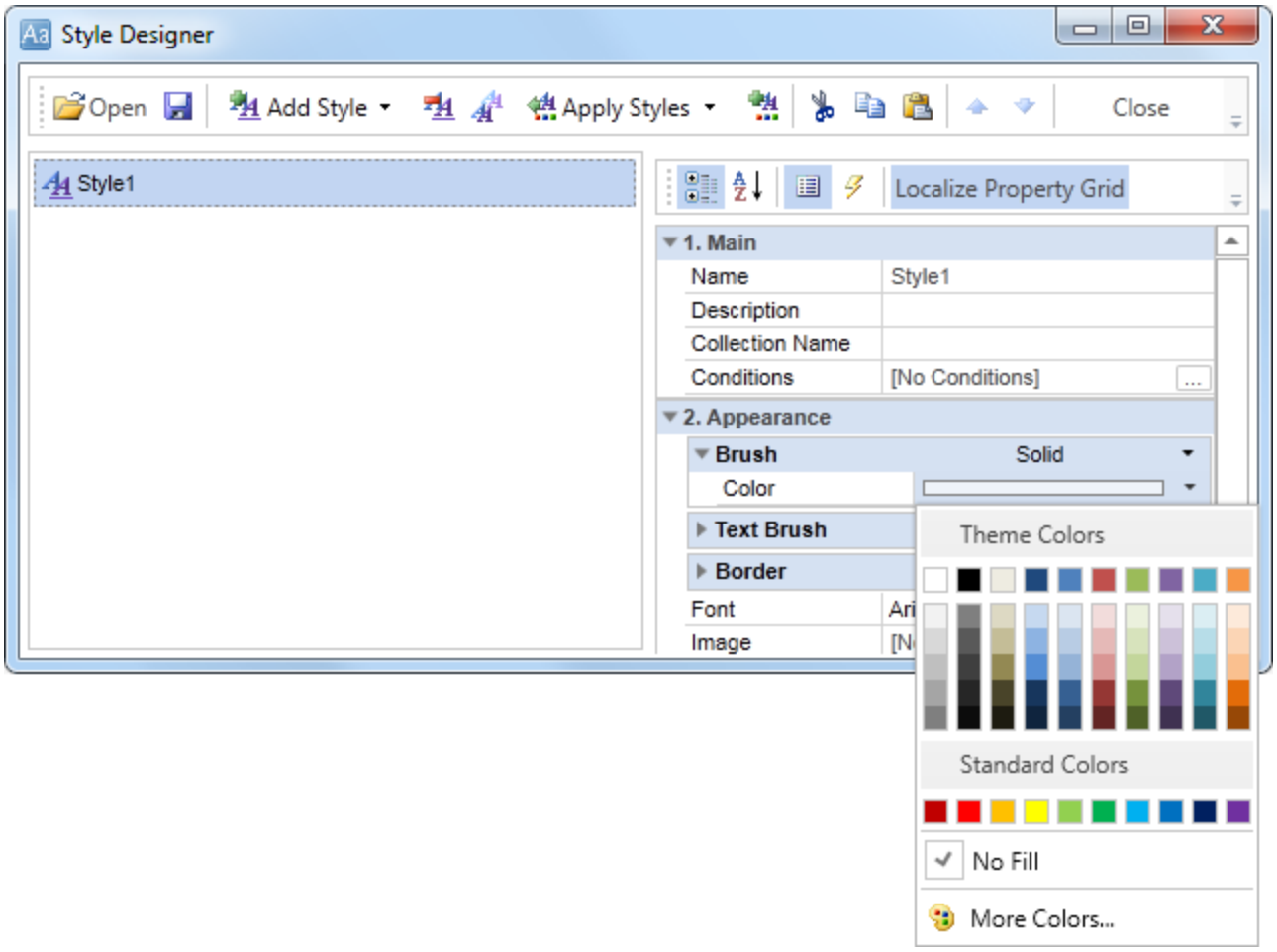


Click **Close**. Then a new value in the list of **Even style** and **Odd style** properties (a style of a list of odd and even rows) will appear.

5. To render the report, click the **Preview** button or invoke the **Viewer**, pressing **F5** or clicking the **Preview** menu item. The picture below shows a sample of a rendered report:

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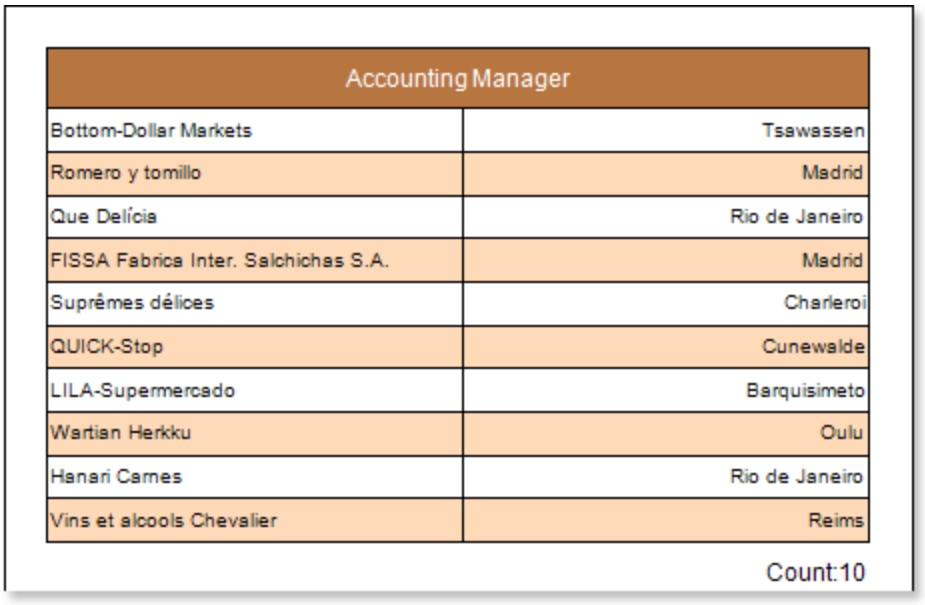

| Accounting Manager | |
|---|---|
| Bottom-Dollar Markets | Tsawassen |
| Romero y tomillo | Madrid |
| Que Delícia | Rio de Janeiro |
| FISSA Fabrica Inter. Salchichas S.A. | Madrid |
| Suprêmes délices | Charleroi |
| QUICK-Stop | Cunewalde |
| LILA-Supermercado | Barquisimeto |
| Wartian Herkku | Oulu |
| Hanari Carnes | Rio de Janeiro |
| Vins et alcools Chevalier | Reims |

Count:10

## 4.16 Drill-Down Report Using Page in Report

For better understanding this step-by-step instruction, please watch the video file.

The **Drill-Down** report using the pages in the report is an interactive report in what detailed data are placed on the page of a report and the relation between master and detailed data in the report is organized with the help of the **Interaction.Drill-Down Page** property. This type of report must contain at least two pages: a one with master data, and a second with detailed ones. Follow the steps below in order to design the report:

1. Run the designer;
2. Connect the data:
    2.1. Create a **New Connection**;
    2.2. Create a **New Data Source**;

3. Put the **DataBand1** on the **Page1** and **DataBand2** on **Page2** of a report. In this case, the master data will be located on the first page, and detailed - on the second page.

4. Edit **DataBand1** and **DataBand2**:

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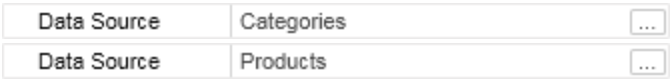
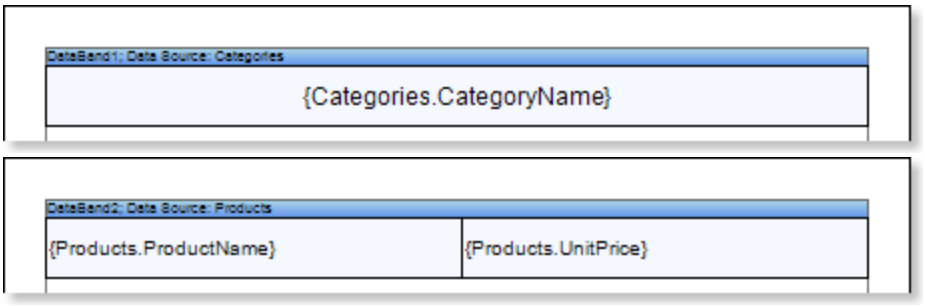
4.1. Align the **DataBands** vertically;
4.2. Change the value of the required properties;
4.3. Change the background color of the **DataBand**;
4.4. If necessary, set **Borders** of the **DataBand**;

5. Define a data source for **DataBands** using the **Data Source** property:




6. Put the text components with expressions. Where the expression is a reference to the data field. For example: put the text component with the **{Categories.CategoryName}** expression in the **DataBand1**, and put two text components with the **{Products.ProductName}** and **{Products.UnitePrice}** expressions in the **DataBand2**;
7. Edit text and text components located in the **DataBands**:
7.1. Drag the text component to the required place in the **DataBands**;
7.2. Align the text in a text component;
7.3. Change the value of the required properties. For example to set the **Word Wrap** property to **true**, if you want the text be wrapped;
7.4. Set **Borders** of a text component, if required.
7.5. Change the border color.




8. Select a text component in the **DataBand1**;
9. Set the **Interaction.Drill-Down Enabled** to **true**;
10. Set the Interaction.Drill-Down Page to **Page2**;
11. Set filter in the **DataBand2**, in this case, we specify the **(int) this ["CategoryID"] == Products.CategoryID** expression;
12. Edit **Drill-Down Parameter 1** for the text component of the **DataBand 1**:
12.1. The **Name** property should be set to **CategoryID**;
12.2. The **Expression** property should be set to **Categories.CategoryID**;

13. Click the **Preview** button or invoke the **Viewer**, pressing **F5** or clicking the **Preview** menu item. After rendering all references to data fields will be changed on data form specified fields. Data will be output in consecutive order from the database that was defined for this report. The amount of copies of the **DataBand** in the rendered report will be the same as the amount of data rows in the database. The picture below shows a sample of a report:

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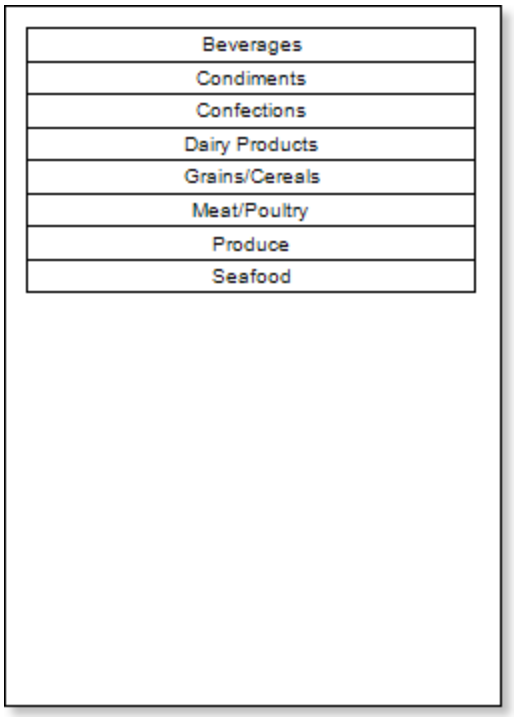
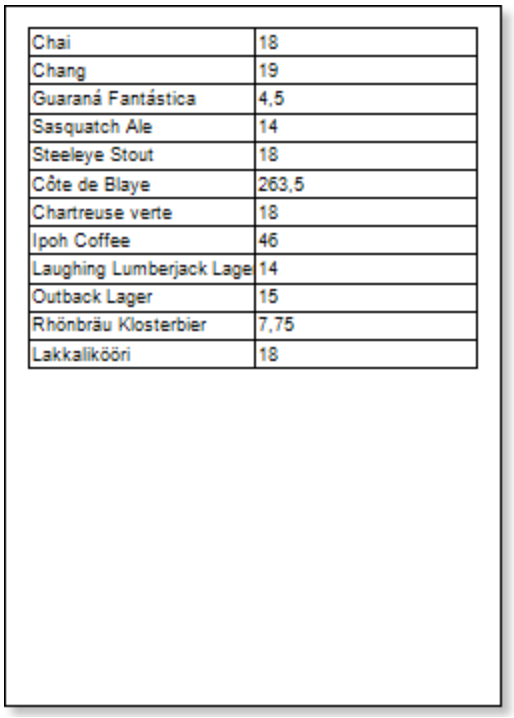


| Beverages |
| --- |
| Condiments |
| Confections |
| Dairy Products |
| Grains/Cereals |
| Meat/Poultry |
| Produce |
| Seafood |

When you click the **Beverages**, the user will see the detailed data that correspond to filtering conditions and parameters of detailing. The picture below shows a page of a rendered report with detailed data of the **Beverages** entry:



| | |
| --- | --- |
| Chai | 18 |
| Chang | 19 |
| Guaraná Fantástica | 4,5 |
| Sasquatch Ale | 14 |
| Steeleye Stout | 18 |
| Côte de Blaye | 263,5 |
| Chartreuse verte | 18 |
| Ipoh Coffee | 46 |
| Laughing Lumberjack Lage | 14 |
| Outback Lager | 15 |
| Rhönbräu Klosterbier | 7,75 |
| Lakkalikööri | 18 |

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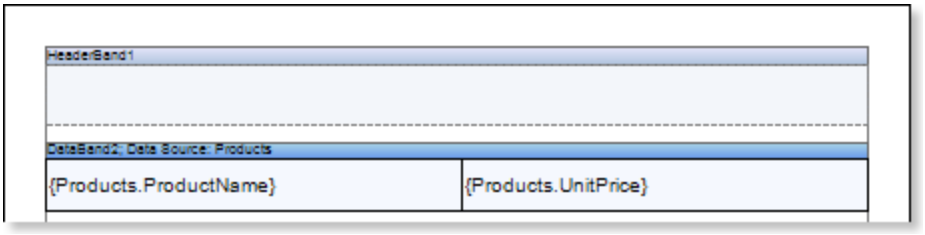
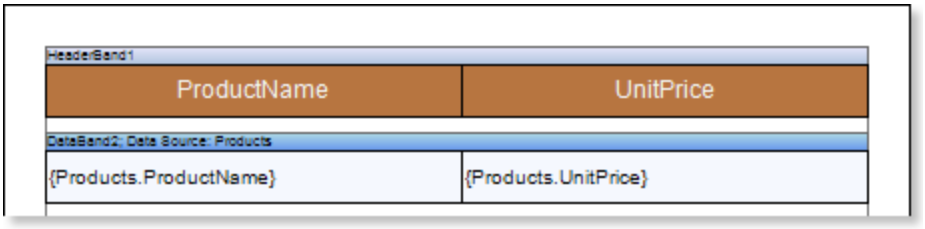
14. Go back to the report template;
15. Add other bands to a report template, for example, add the **HeaderBand** to the **Page2** of a report;
16. Edit the band:
    16.1. Align it by height;
    16.2. Change values of properties, if required;
    16.3. Change the background of the band;
    16.4. Enable **Borders**, if required;
    16.5. Set the border color.




17. Put a text component with an expression in this band. The expression in the text component is a header in the **HeaderBand**.
18. Edit text and text components:
    18.1. Drag and drop the text component in the band;
    18.2. Change font options: size, type, color;
    18.3. Align text component by height and width;
    18.4. Change the background of the text component;
    18.5. Align text in the text component;
    18.6. Change values of text component properties, if required;
    18.7. Enable **Borders** of the text component, if required;
    18.8. Set the border color.




19. Click the **Preview** button or invoke the **Viewer**, pressing **F5** or clicking the **Preview** menu item. After rendering all references to data fields will be changed on data form specified fields. Data will be output in consecutive order from the database that was defined for this report. The amount of copies of the **DataBand** in the rendered report will be the same as the amount of data rows in the database. The picture below shows the structure of a report, i.e. shows the ratio of detailed data to the master **Condiments** entry:

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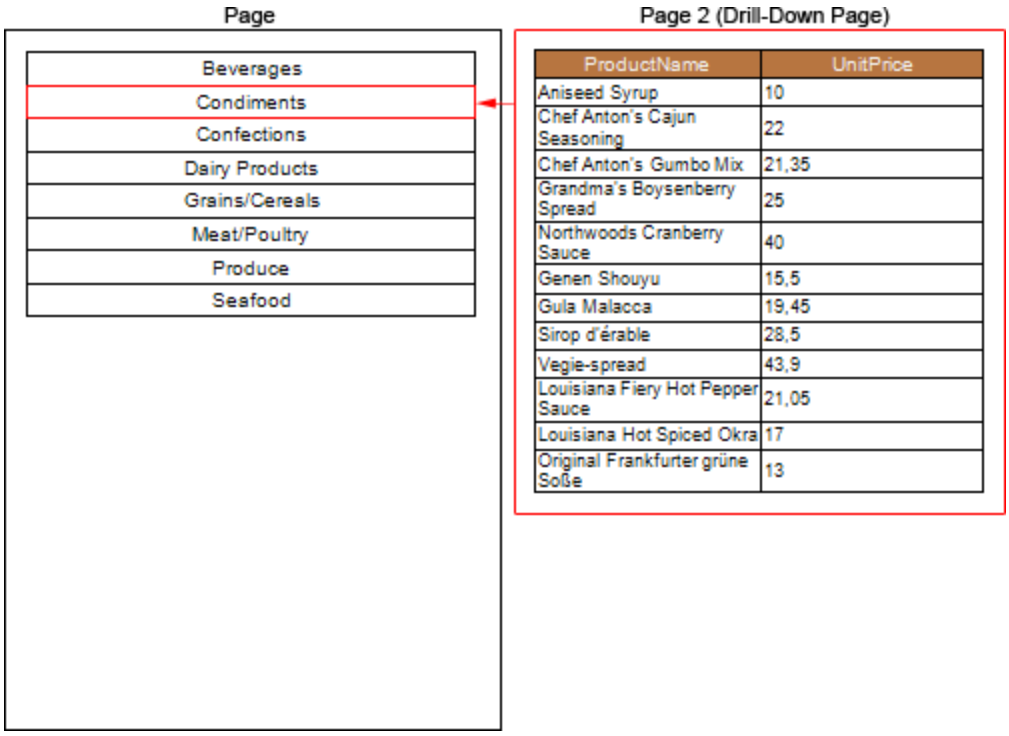


## Adding styles

1. Go back to the report template;
2. Select the **DataBand**;
3. Change values of **Even style** and **Odd style** properties. If values of these properties are not set, then select the **Edit Styles** in the list of values of these properties and, using **Style Designer**, create a new style. The picture below shows the **Style Designer**.

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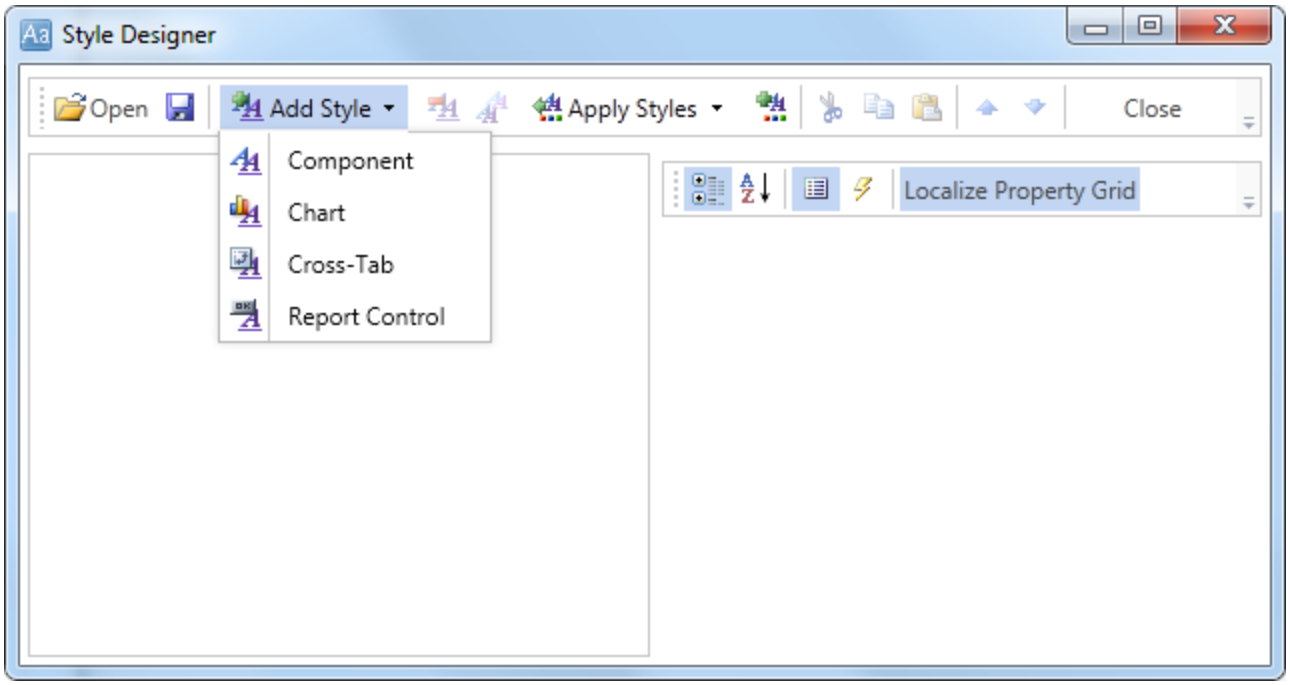


Click the **Add Style** button to start creating a style. Select **Component** from the drop down list. Set the **Brush.Color** property to change the background color of a row. The picture below shows a sample of the **Style Designer** with the list of values of the **Brush.Color** property:

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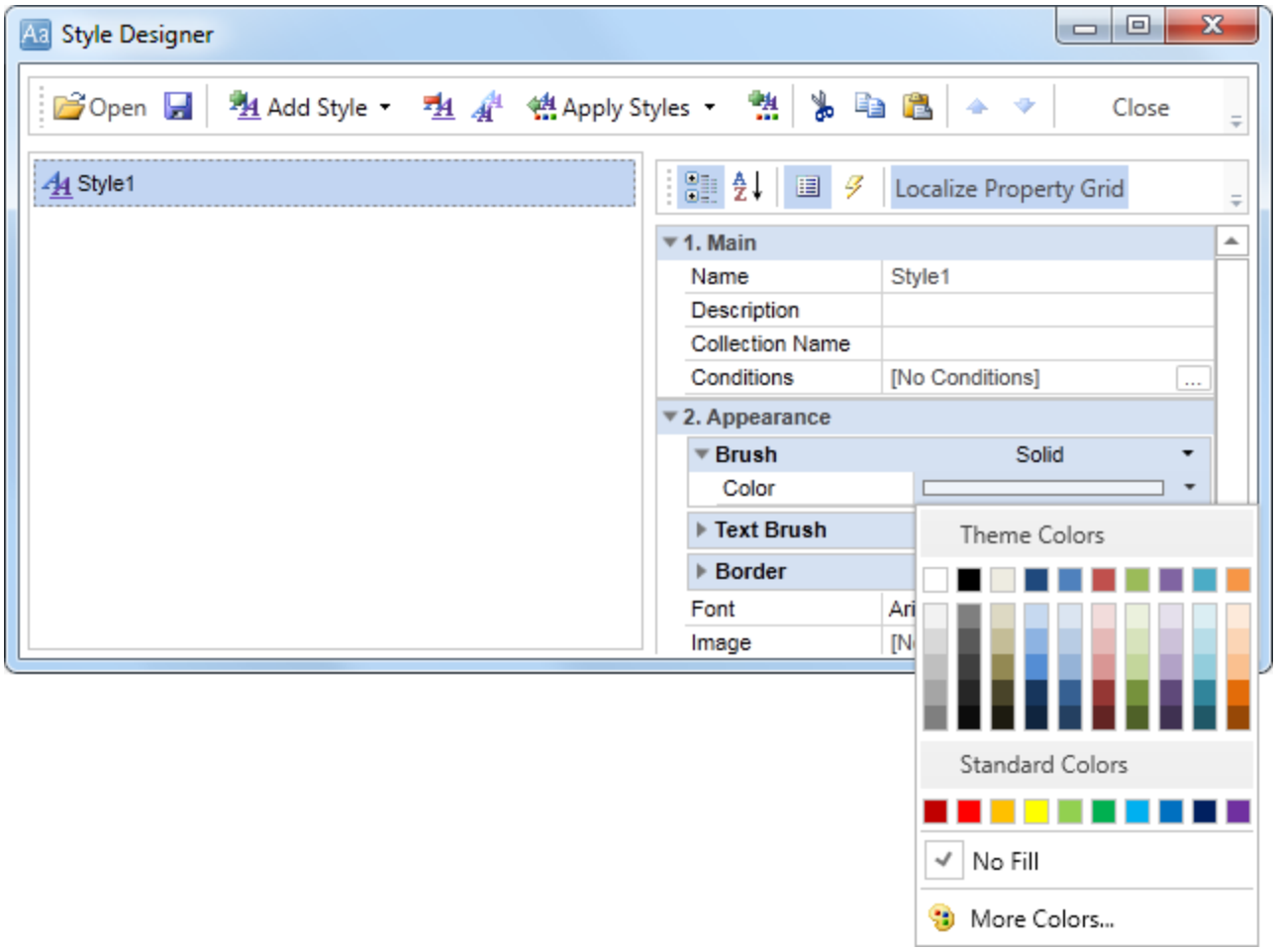


Click **Close**. Then a new value in the list of **Even style** and **Odd style** properties (a style of a list of odd and even rows) will appear.

5. The picture below shows the structure of a report, i.e. shows the ratio of detailed data to the **Confections** master entry with different styles even/odd rows of the **DataBand**:

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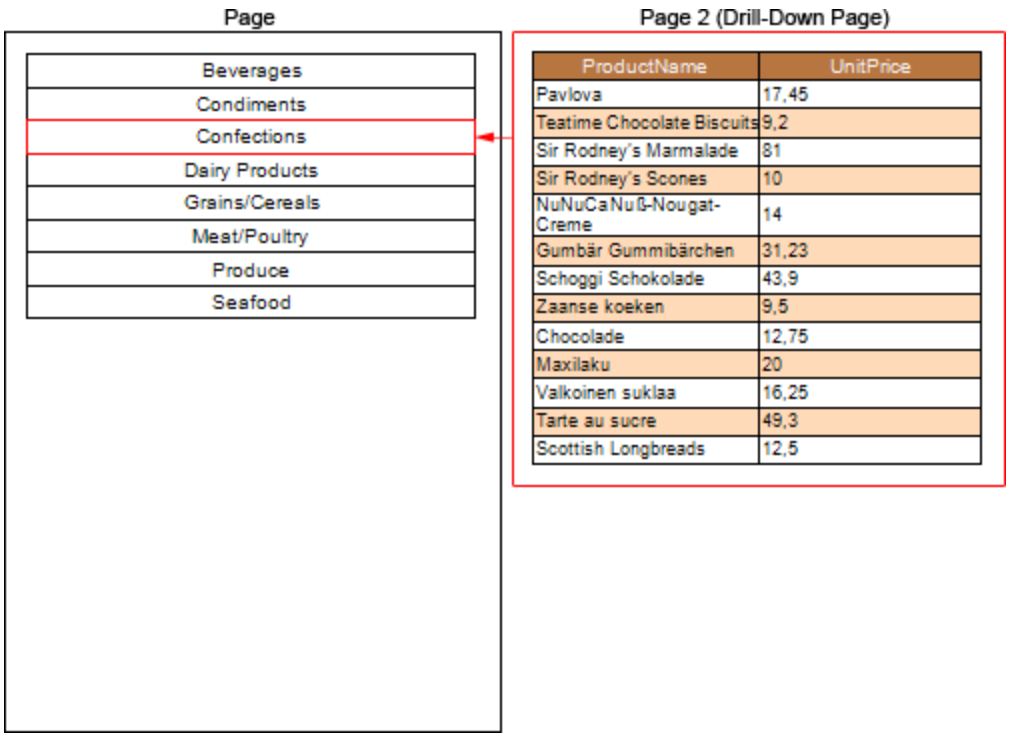



## 4.17 Drill-Down Report Using External Report

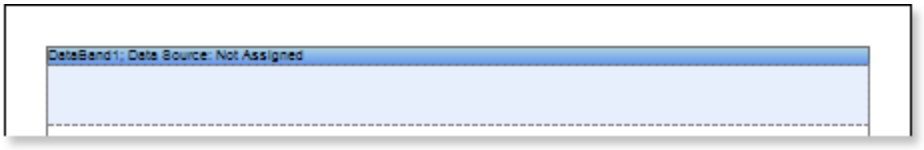
For better understanding this step-by-step instruction, please watch the video file.

Drill-Down report using external report is an interactive report in what detailed data are placed in an external report and the relationship between master and detailed data in reports is organized using the **Interaction.Drill-Down Report** property. Follow the steps below in order to design the report:

### Creating a report with detailed data

1. Run the designer;
2. Connect the data:
    2.1. Create a **New Connection**;
    2.2. Create a **New Data Source**;

3. Put the **DataBand** on a report page:

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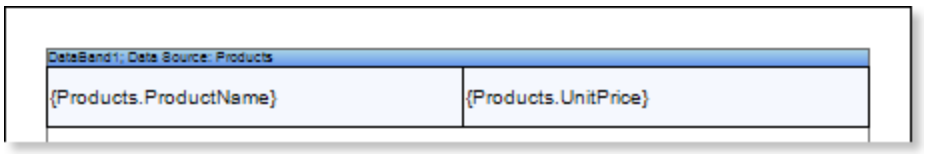
4. Edit the **DataBand**:
   4.1. Align the **DataBand**;
   4.2. Change the values of properties;
   4.3. Set the background color of the **DataBand**;
   4.4. Set **Borders**, if required;
   4.5. Set the border color.

5. Specify the data source in **DataBand** using the **Data Source** property:

6. Put text components with expressions in the **DataBand**. Where the expression is a reference to the data field. For example: put two text components with the **{Products.ProductName}** and **{Products.UnitePrice}** expressions in the **DataBand**;
7. Edit text and text components located in the **DataBand**:
   7.1. Drag the text component to the required place in the **DataBand**;
   7.2. Align the text in a text component;
   7.3. Change the value of the required properties. For example to set the **Word Wrap** property to **true**, if you want the text be wrapped;
   7.4. Set **Borders** of a text component, if required;
   7.5. Change the border color.




8. Click the **Preview** button or invoke the **Viewer**, pressing **F5** or clicking the **Preview** menu item. After rendering all references to data fields will be changed on data form specified fields. Data will be output in consecutive order from the database that was defined for this report. The amount of copies of the **DataBand** in the rendered report will be the same as the amount of data rows in the database. The picture below shows a sample of a report:

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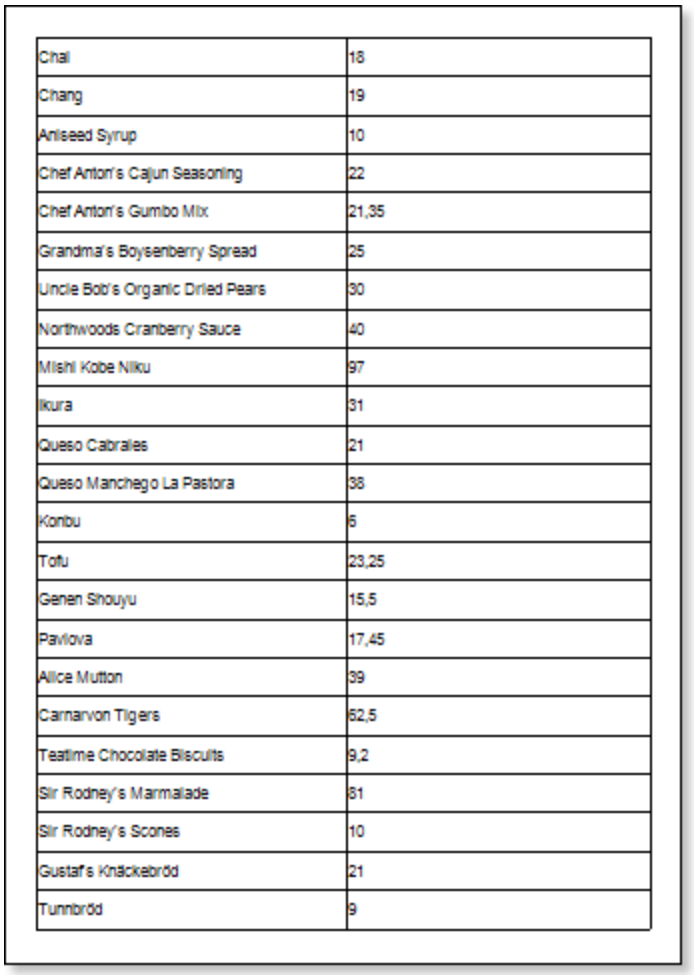
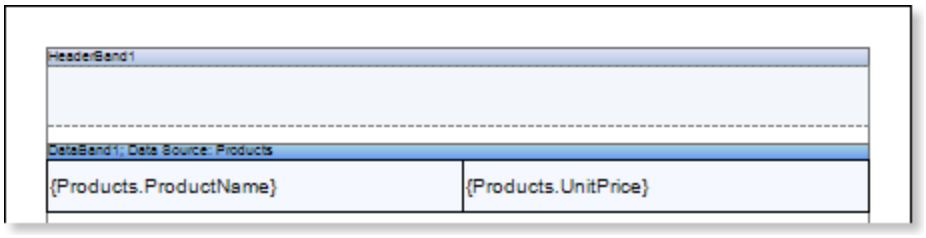


| | |
|---|---|
| Chai | 18 |
| Chang | 19 |
| Aniseed Syrup | 10 |
| Chef Anton's Cajun Seasoning | 22 |
| Chef Anton's Gumbo Mix | 21,35 |
| Grandma's Boysenberry Spread | 25 |
| Uncle Bob's Organic Dried Pears | 30 |
| Northwoods Cranberry Sauce | 40 |
| Mishi Kobe Niku | 97 |
| Ikura | 31 |
| Queso Cabrales | 21 |
| Queso Manchego La Pastora | 38 |
| Konbu | 6 |
| Tofu | 23,25 |
| Genen Shouyu | 15,5 |
| Pavlova | 17,45 |
| Alice Mutton | 39 |
| Carnarvon Tigers | 62,5 |
| Teatime Chocolate Biscuits | 9,2 |
| Sir Rodney's Marmalade | 81 |
| Sir Rodney's Scones | 10 |
| Gustaf's Knäckebröd | 21 |
| Tunnbröd | 9 |

9. Go back to the report template;
10. Add other bands to a report template, for example, add the **HeaderBand** to the report page;
11. Edit the band:
    11.1. Align it by height;
    11.2. Change values of properties, if required;
    11.3. Change the background of the band;
    11.4. Enable **Borders**, if required;
    11.5. Set the border color.




12. Put a text component with an expression in this band. The expression in the text component is a header in the **HeaderBand**.
13. Edit text and text components:

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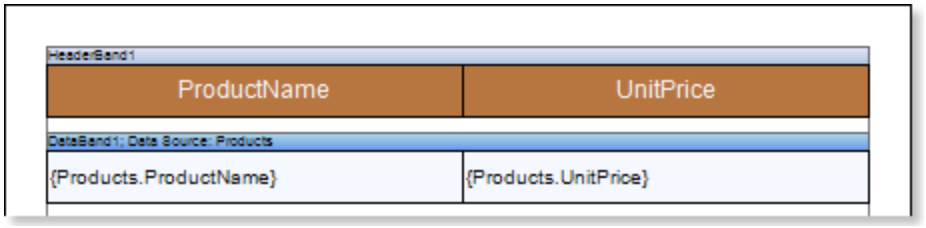
13.1. Drag and drop the text component in the band;
13.2. Change font options: size, type, color;
13.3. Align text component by height and width;
13.4. Change the background of the text component;
13.5. Align text in the text component;
13.6. Change values of text component properties, if required;
13.7. Enable **Borders** of the text component, if required;
13.8. Set the border color.




14. Click the **Preview** button or invoke the **Viewer**, pressing **F5** or clicking the **Preview** menu item. After rendering all references to data fields will be changed on data form specified fields. Data will be output in consecutive order from the database that was defined for this report. The amount of copies of the **DataBand** in the rendered report will be the same as the amount of data rows in the database. The picture below shows a sample of a report:

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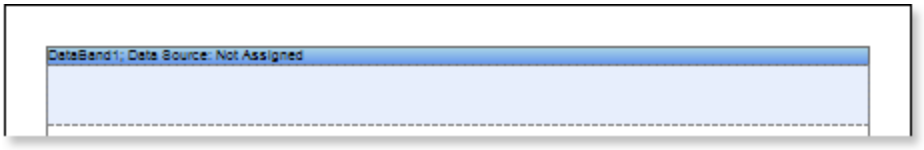
| ProductName | UnitPrice |
|---|---|
| Chai | 18 |
| Chang | 19 |
| Aniseed Syrup | 10 |
| Chef Anton's Cajun Seasoning | 22 |
| Chef Anton's Gumbo Mix | 21,35 |
| Grandma's Boysenberry Spread | 25 |
| Uncle Bob's Organic Dried Pears | 30 |
| Northwoods Cranberry Sauce | 40 |
| Mishi Kobe Niku | 97 |
| Ikura | 31 |
| Queso Cabrales | 21 |
| Queso Manchego La Pastora | 38 |
| Konbu | 6 |
| Tofu | 23,25 |
| Genen Shouyu | 15,5 |
| Pavlova | 17,45 |
| Alice Mutton | 39 |
| Carnarvon Tigers | 62,5 |
| Teatime Chocolate Biscuits | 9,2 |
| Sir Rodney's Marmalade | 81 |
| Sir Rodney's Scones | 10 |
| Gustaf's Knäckebröd | 21 |

15. Go back to the report template;;
16. Set filtering in the **DataBand**. For example, set the following expression: **CategoryID == Products.CategoryID**;
17. Save the report. For example, save the report with detailed data on a local disk in the root directory D:\\, with the **Drill-Down Report** name, i.e. full path to the file will be **D:\\ Drill-Down Report.mrt**.

## Creating a report with master data

1. Run the designer;
2. Connect the data:
   2.1. Create a **New Connection**;
   2.2. Create a **New Data Source**;

3. Put the **DataBand** on a report page:

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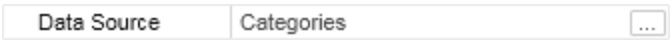
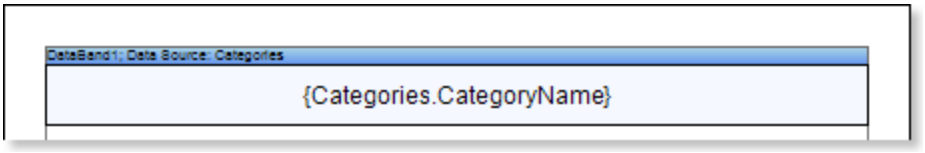
4. Edit the **DataBand**:
   4.1. Align the **DataBand**;
   4.2. Change the values of properties;
   4.3. Set the background color of the **DataBand**;
   4.4. Set **Borders**, if required;
   4.5. Set the border color.

5. Specify the data source in **DataBand** using the **Data Source** property:




6. Put a text component with expressions in the **DataBand**. Where the expression is a reference to the data field. For example: put the text component with the **{Categories.CategoryName}** expression in the **DataBand**;
7. Edit text and text components located in the **DataBand**:
   7.1. Drag the text component to the required place in the **DataBand**;
   7.2. Align the text in a text component;
   7.3. Change the value of the required properties. For example to set the **Word Wrap** property to **true**, if you want the text be wrapped;
   7.4. Set **Borders** of a text component, if required;
   7.5. Change the border color.




8. Click the **Preview** button or invoke the **Viewer**, pressing **F5** or clicking the **Preview** menu item. After rendering all references to data fields will be changed on data form specified fields. Data will be output in consecutive order from the database that was defined for this report. The amount of copies of the **DataBand** in the rendered report will be the same as the amount of data rows in the database. The picture below shows a sample of a report:

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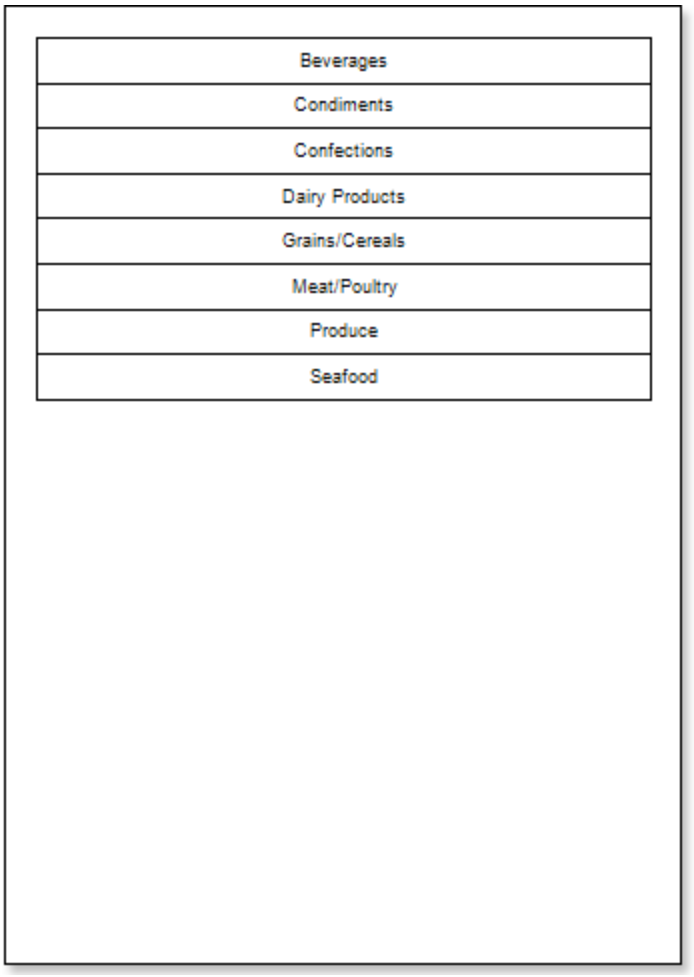


## Creating an interactive report

1. Go back to the report template with the master data;
2. Select a text component in the **DataBand**;
3. Set the **Interaction.Drill-Down Enabled** property to **true**;
4. Set the **Interaction.Drill-Down Report** property. Where the value of this property is the full path to the report with detailed data. In our tutorial, the **Interaction.Drill-Down Report** property will be set to **D:\\Drill-Down Report.mrt**;
5. Edit **Drill-Down Parameter 1**:
    5.1. The **Name** property should be set to **CategoryID**;
    5.2. The **Expression** property should be set to **Categories.CategoryID**;

6. Click the **Preview** button or invoke the **Viewer**, pressing **F5** or clicking the **Preview** menu item. After rendering all references to data fields will be changed on data form specified fields. Data will be output in consecutive order from the database that was defined for this report. The amount of copies of the **DataBand** in the rendered report will be the same as the amount of data rows in the database. The picture below shows a sample of a report:

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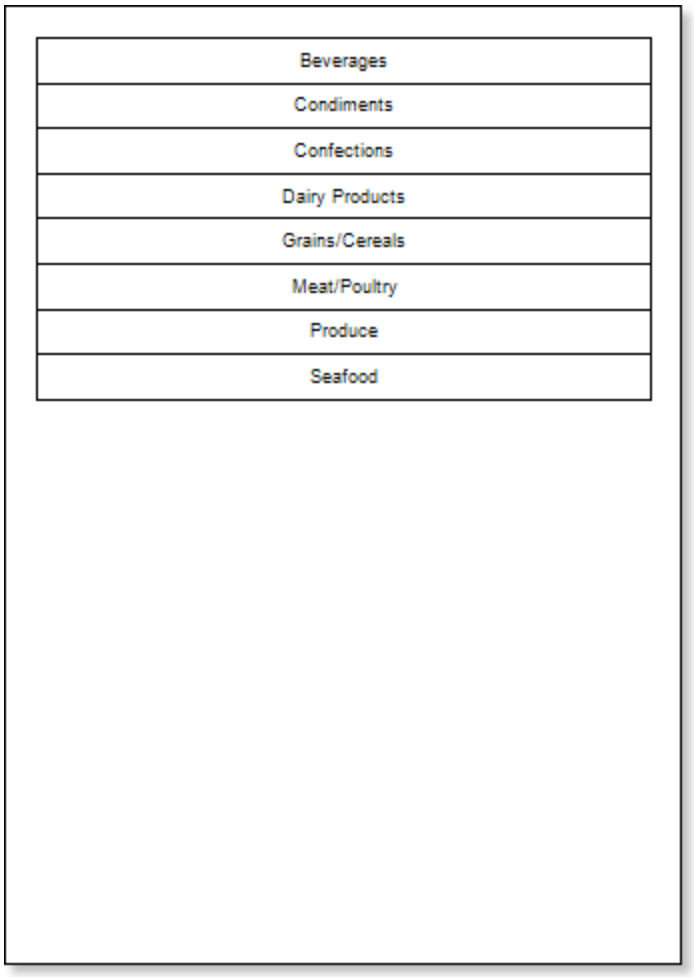


When you click the **Beverages**, the user will see the detailed data that correspond to filtering conditions and parameters of detailing. The picture below shows a page of a rendered report with detailed data of the **Beverages** entry:

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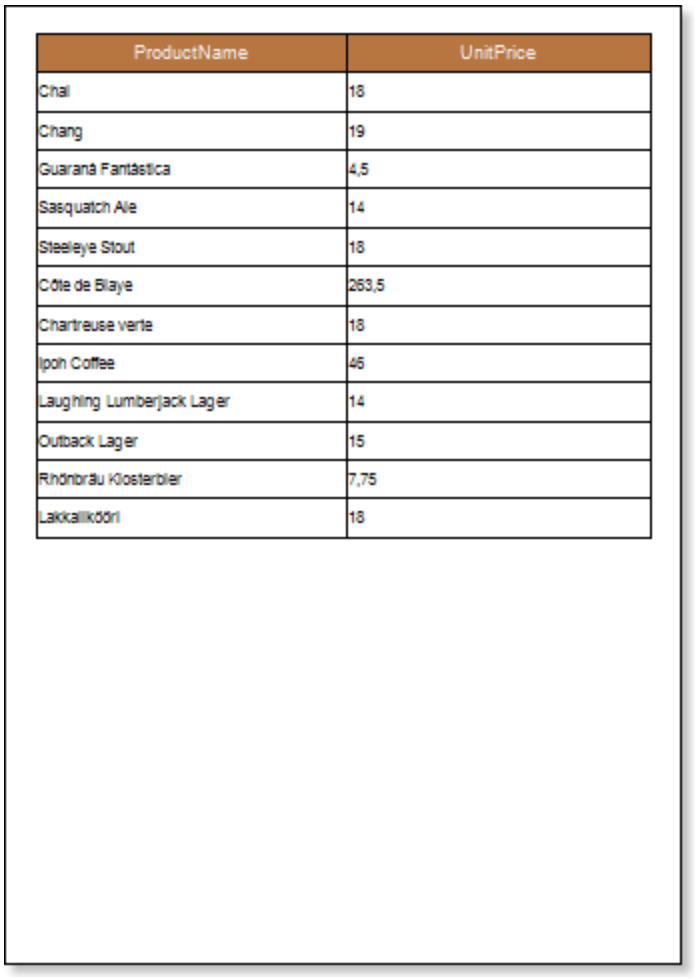

| ProductName | UnitPrice |
|---|---|
| Chai | 18 |
| Chang | 19 |
| Guaraná Fantástica | 4,5 |
| Sasquatch Ale | 14 |
| Steeleye Stout | 18 |
| Côte de Blaye | 263,5 |
| Chartreuse verte | 18 |
| Ipoh Coffee | 46 |
| Laughing Lumberjack Lager | 14 |
| Outback Lager | 15 |
| Rhönbräu Klosterbier | 7,75 |
| Lakkalikööri | 18 |

## Adding styles

1. Go back to the report template;
2. Select the **DataBand**;
3. Change values of **Even style** and **Odd style** properties. If values of these properties are not set, then select the **Edit Styles** in the list of values of these properties and, using **Style Designer**, create a new style. The picture below shows the **Style Designer**.

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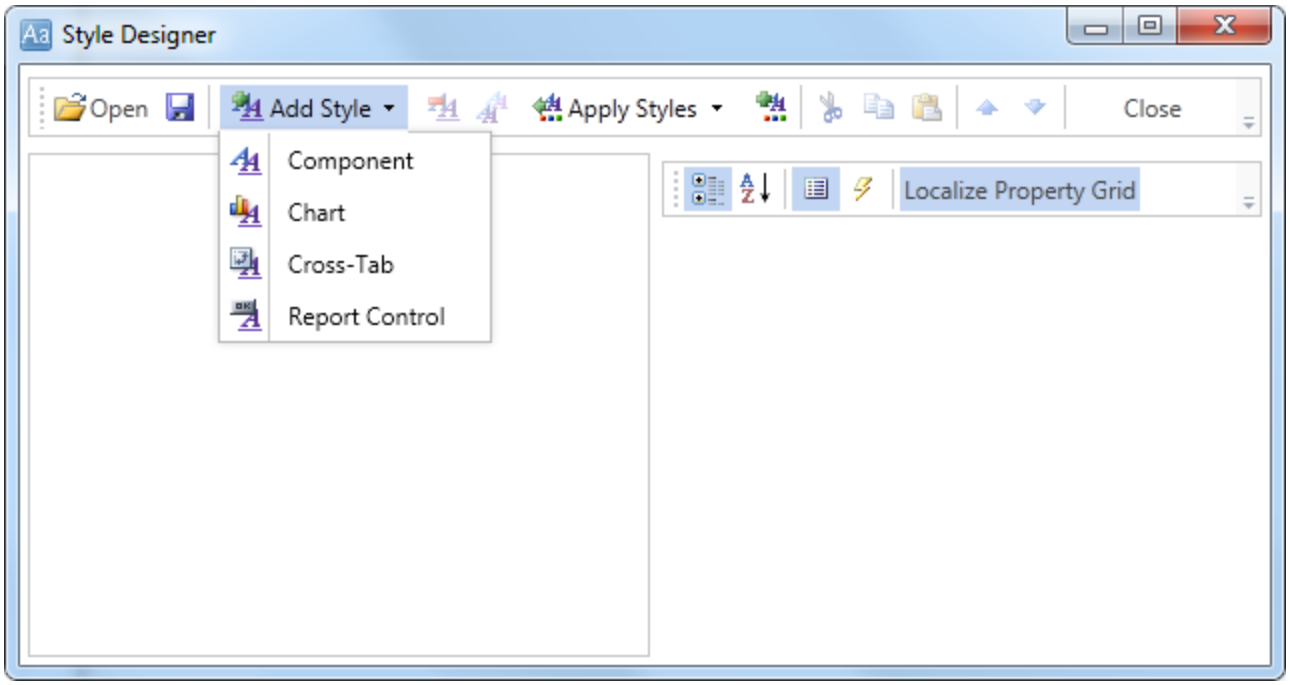
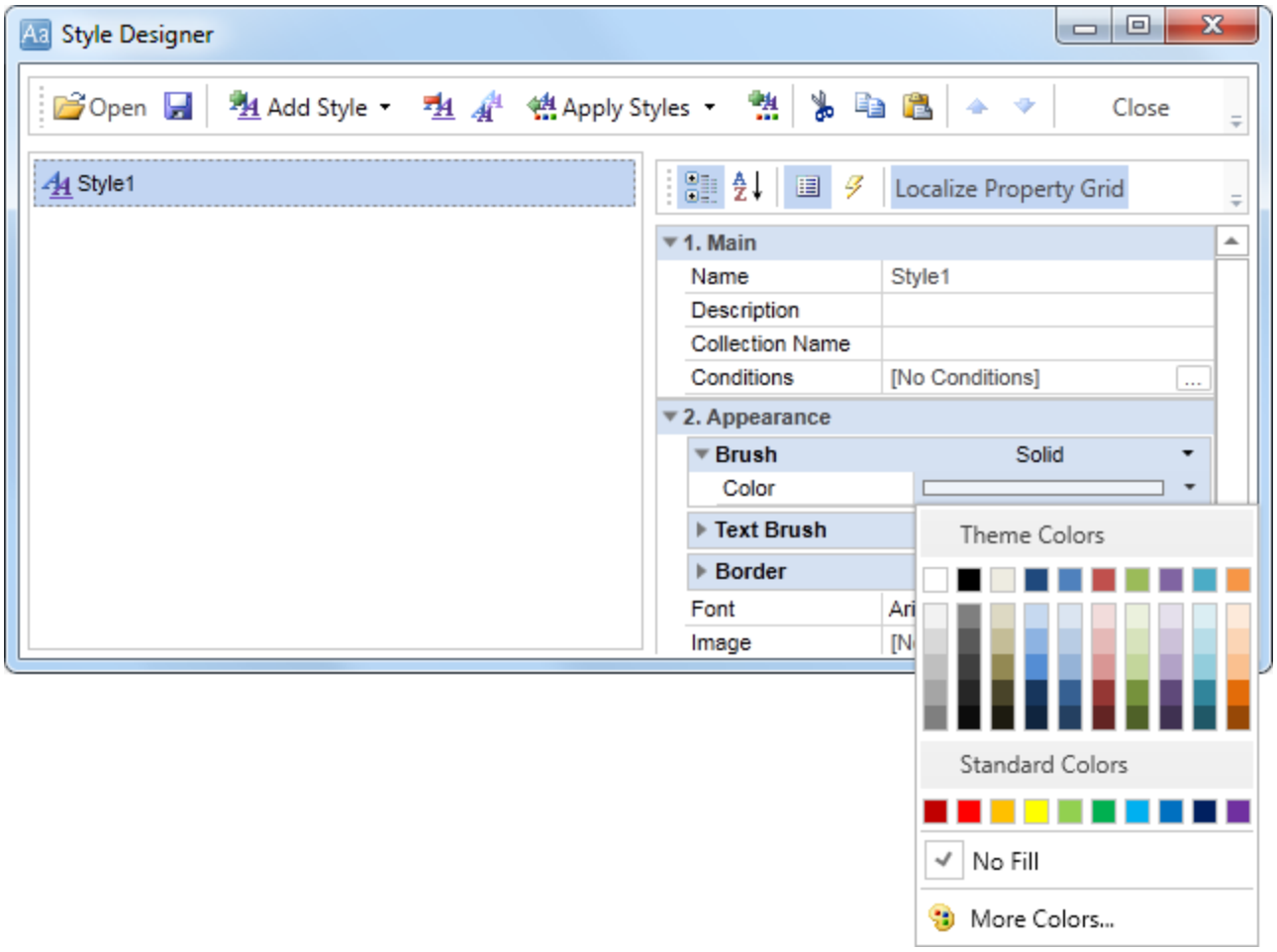



Click the **Add Style** button to start creating a style. Select **Component** from the drop down list. Set the **Brush.Color** property to change the background color of a row. The picture below shows a sample of the **Style Designer** with the list of values of the **Brush.Color** property:

© 2003-2013 Stimulsoft




Click **Close**. Then a new value in the list of **Even style** and **Odd style** properties (a style of a list of odd and even rows) will appear.

1. Save changes in the detailed report by clicking the **Save** button;
2. Open the report with master data in the designer;
3. Click the **Preview** button or invoke the **Viewer**, pressing **F5** or clicking the **Preview** menu item. The picture below shows the structure of the report, i.e. shows the ratio of the detailed data to the **Meat/Poultry** master entries with different styles of even/odd rows of the **DataBand** in the detailing report:

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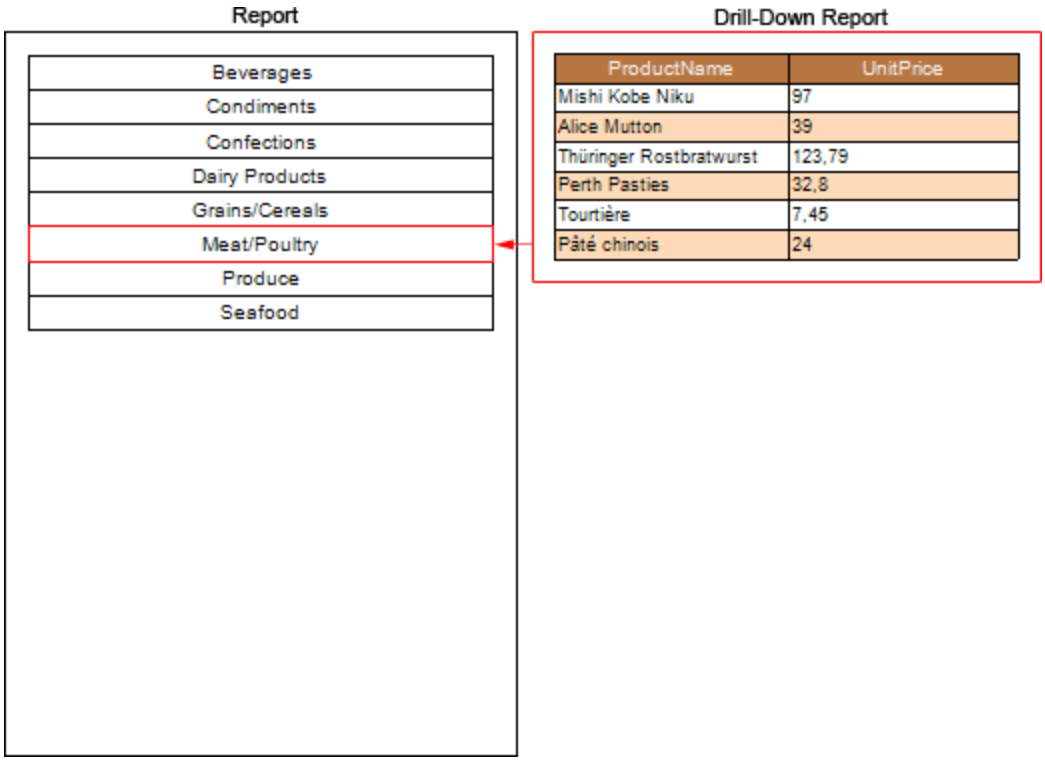


## 4.18 Report without Bands

For better understanding this step-by-step instruction, please watch the video file.

If it is necessary to display data from only one entry of the data source or data from variables or other data sources that are not lists, the report can be created without the bands. In this case, components are placed directly on a report page.

1. Run the designer;
2. Connect the data:
    2.1. Create a **New Connection**;
    2.2. Create a **New Data Source**;

3. Put the **Image** component with the image on a page;
4. Edit the **Image** component and an image:
    4.1. Drag and drop the **Image** component on the report page;
    4.2. Align the **Image** component by height and width;
    4.3. Set the background color of the **Image** component;
    4.4. Align the image in the component;
    4.5. Change values of the properties of the **Image** component. For example to set the **Print** property to **true**, if you want this component be printed;
    4.6. If necessary, set **Borders** of the **Image** component;
    4.7. Set the border color.

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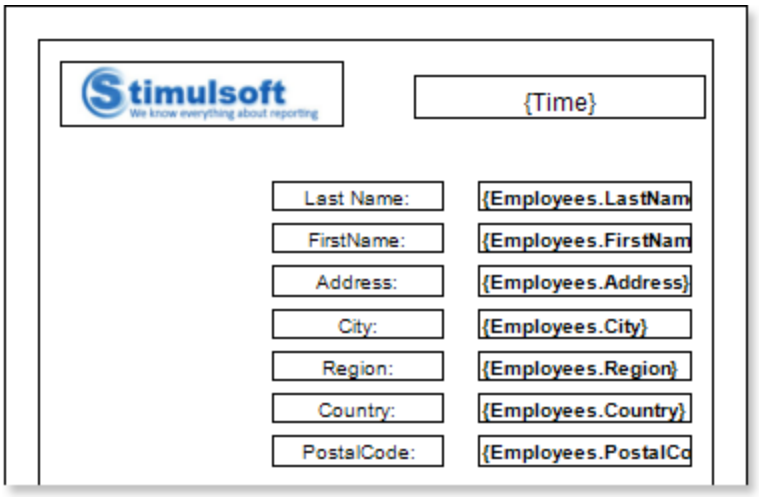
5. Put **TextBoxes** with the text on a page. In this report, put 15 Text components. The **TextBox1** contains the **{Time}** system variable, which will display the current time and date. **2-8 TextBoxes** contain the row names in the address box, and **9-15 TextBoxes** will include links to data sources;
6. Edit text and text components:
   6.1. Drag and drop the text component in the band;
   6.2. Change font options: size, type, color;
   6.3. Align text component by height and width;
   6.4. Change the background of the text component;
   6.5. Align text in the text component;
   6.6. Change values of text component properties, if required;
   6.7. Enable **Borders** of the text component, if required;
   6.8. Set the border color.




7. Click the **Preview** button or invoke the **Viewer**, pressing **F5** or clicking the **Preview** menu item:

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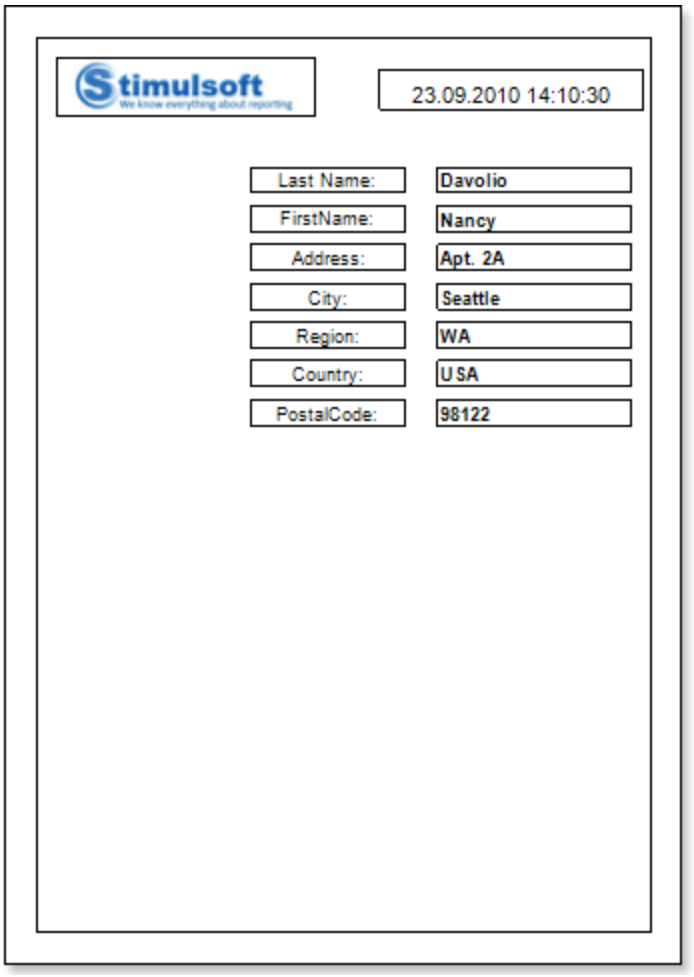
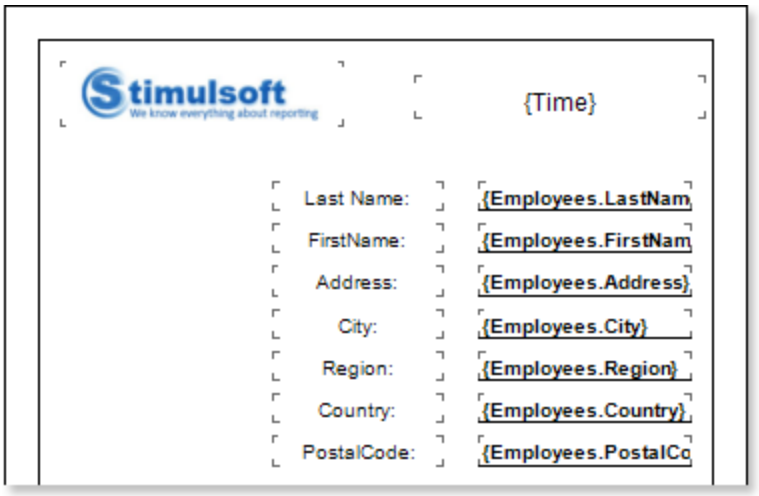



8. Go back to the report template;
9. Disable **Borders** of all components. Enable bottom borders for **9-15 TextBoxes**:




10. Click the **Preview** button or invoke the **Viewer**, pressing **F5** or clicking the **Preview** menu item.

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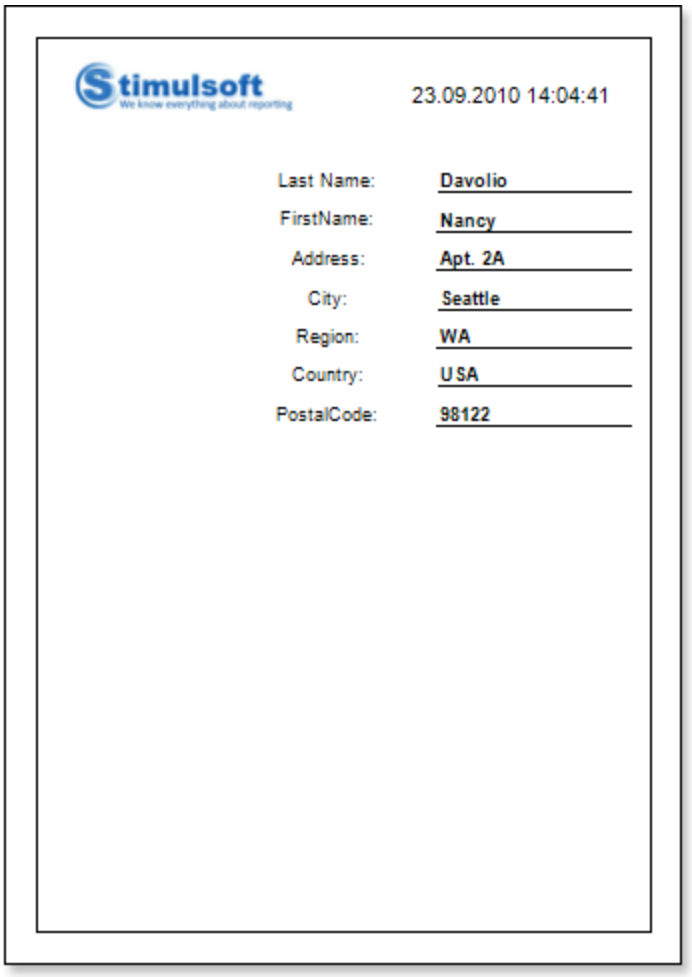


## 4.19 Report with Multiple Pages in Template

For better understanding this step-by-step instruction, please watch the video file.

If you want to design a report, for example, with the cover page, the report template will consist of minimum two pages: the cover page and page with data. Creating a report with several pages in the template includes the following steps:

### Creating a cover page

1. Run the designer;
2. Connect the data:
    2.1. Create a **New Connection**;
    2.2. Create a **New Data Source**;

3. Put an Image component on a report page;
4. Edit the Image component:

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4.1. Drag the **Image** component to the desired location on the report page;
4.2. Align the **Image** component by height and width;
4.3. Set the background color of the component;
4.4. Align the image in the Image component;
4.5. Set properties of the **Image** component. For example, set the **Print** property to **true**, if you want this component be printed;
4.6. Set **Borders** of the component, if required;
4.7. Set the border color.

5. On the report page Text components should be placed. We put 9 text components on this page. **TextBox1** will contain the **Report on Employees** text, which is the title of the report. **TextBoxes 2-5** will contain names in the address box, and **TextBoxes 6-9** will contain references to the source data;
6. Edit text and text components:
6.1. Drag and drop the text component in the band;
6.2. Change font options: size, type, color;
6.3. Align text component by height and width;
6.4. Change the background of the text component;
6.5. Align text in the text component;
6.6. Change values of text component properties, if required;
6.7. Enable **Borders** of the text component, if required;
6.8. Set the border color.

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7. Click the **Preview** button or invoke the **Viewer**, pressing **F5** or clicking the **Preview** menu item:

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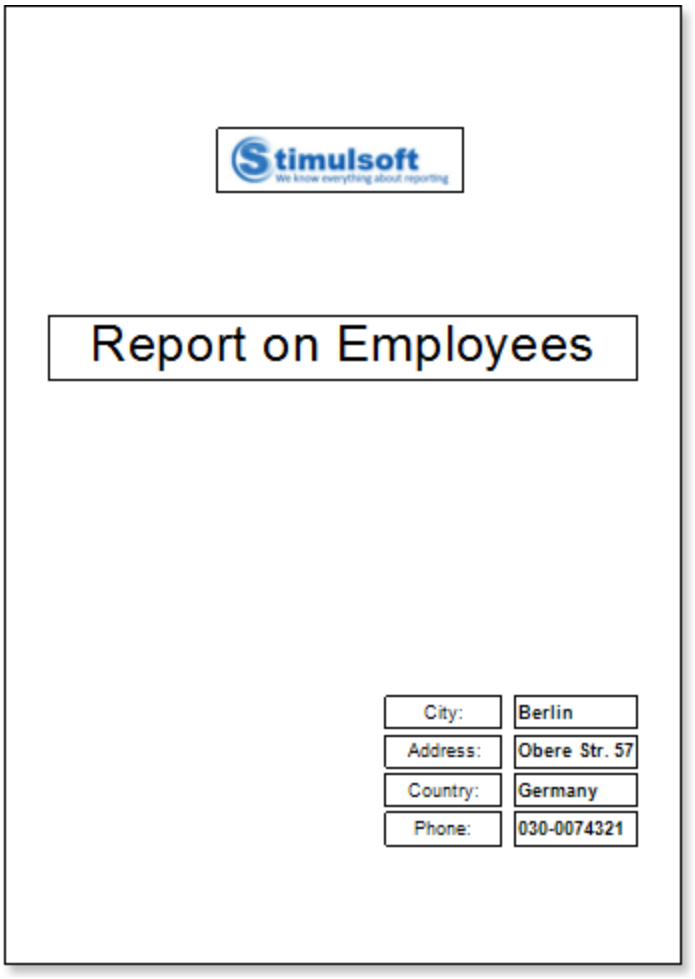


8. Go back to the report template;
9. Disable **Borders** for all components. Enable only the bottom borders in **TextBoxes 6-9**. The figure below submitted revised report template:

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10. Create a second page in a report template and start editing it;

## Creating a page with data

1. Put the **DataBand** page on the report template.

2. Edit **DataBand**:
   2.1. Align the **DataBand** by height;
   2.2. Change values of band properties. For example, set the **Can Break** property to **true**, if you wish the data band to be broken;

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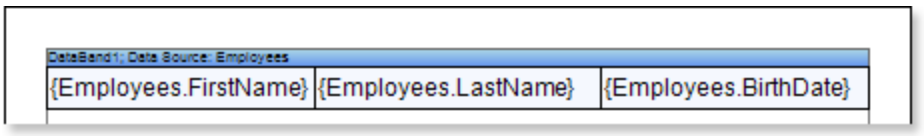
2.3. Change the **DataBand** background;
2.4. Enable **Borders** for the **DataBand**, if required;
2.5. Change the border color.

3. Specify the data source in the **DataBand** using the **Data Source** property:

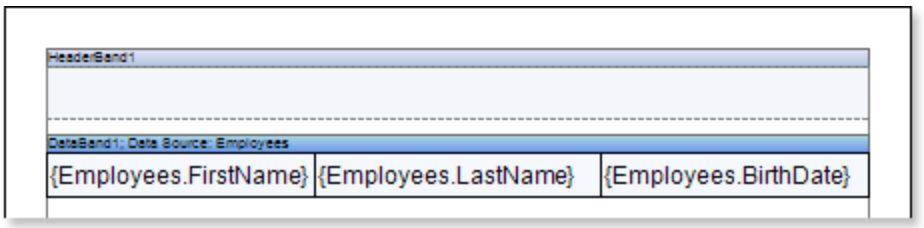
4. Put text components with expressions on **DataBands**. Where expression is a reference to the data field. For example, put two text components with the following expressions:**{Employees.FirstName}, {Employees.LastName}** and **{Employees.BirthDate}**;

5. Edit **Text** and **TextBox** component:
5.1. Drag and drop the text component in **DataBands**;
5.2. Change parameters of the text font: size, type, color;
5.3. Align the text component by width and height;
5.4. Change the background of the text component;
5.5. Align text in the text component;
5.6. Change the value of properties of the text component. For example, set the **Word Wrap** property to **true**, if you need a text to be wrapped;
5.7. Enable **Borders** for the text component, if required.
5.8. Change the border color.




6. Add other bands to the report template, for example, the **HeaderBand**;

7. Edit this bands:
7.1. Align it by height;
7.2. Change values of properties, if required;
7.3. Change the background of bands;
7.4. Enable **Borders**, if required;
7.5. Set the border color.




8. Put text components with expressions in the band. The expression in the text component is a header in the **HeaderBand**.

9. Edit text and text component:
9.1. Drag and drop the text component in the band;
9.2. Change font options: size, type, color;
9.3. Align text component by height and width;
9.4. Change the background of the text component;

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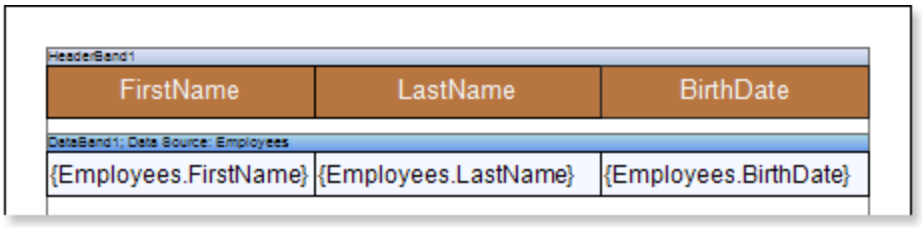
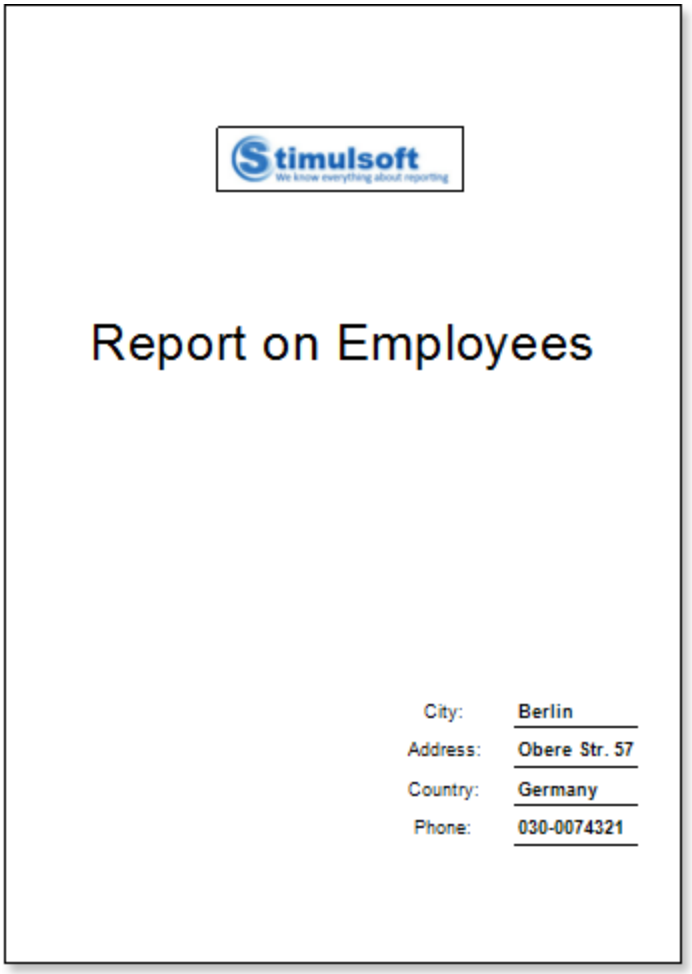
9.5. Align text in the text component;
9.6. Change values of text component properties, if required;
9.7. Enable **Borders** of the text component, if required;
9.8. Set the border color.




9. Click the **Preview** button or invoke the **Viewer**, pressing **F5** or clicking the **Preview** menu item. After rendering all references to data fields will be changed on data form specified fields. Data will be output in consecutive order from the database that was defined for this report. The amount of copies of the **DataBand** in the rendered report will be the same as the amount of data rows in the database.

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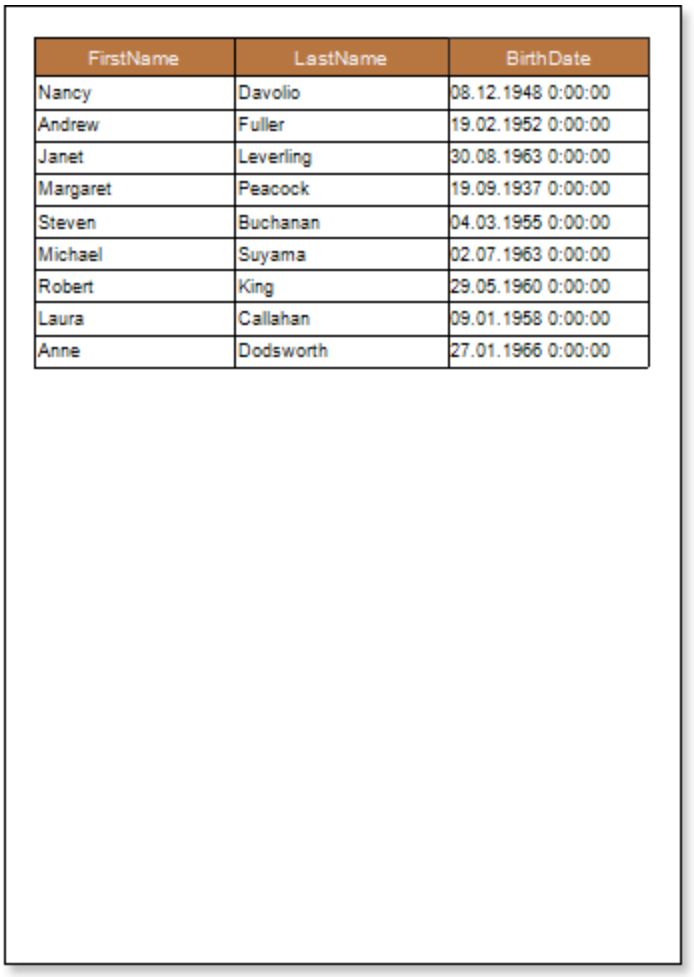

| FirstName | LastName | BirthDate |
|---|---|---|
| Nancy | Davolio | 08.12.1948 0:00:00 |
| Andrew | Fuller | 19.02.1952 0:00:00 |
| Janet | Leverling | 30.08.1963 0:00:00 |
| Margaret | Peacock | 19.09.1937 0:00:00 |
| Steven | Buchanan | 04.03.1955 0:00:00 |
| Michael | Suyama | 02.07.1963 0:00:00 |
| Robert | King | 29.05.1960 0:00:00 |
| Laura | Callahan | 09.01.1958 0:00:00 |
| Anne | Dodsworth | 27.01.1966 0:00:00 |

## Adding Styles

1. Go back to the report template;
2. Select **DataBand**;
3. Change values of **Even style** and **Odd style** properties. If values of these properties are not set, then select the **Edit Styles** in the list of values of these properties and, using **Style Designer**, create a new style. The picture below shows the **Style Designer**:

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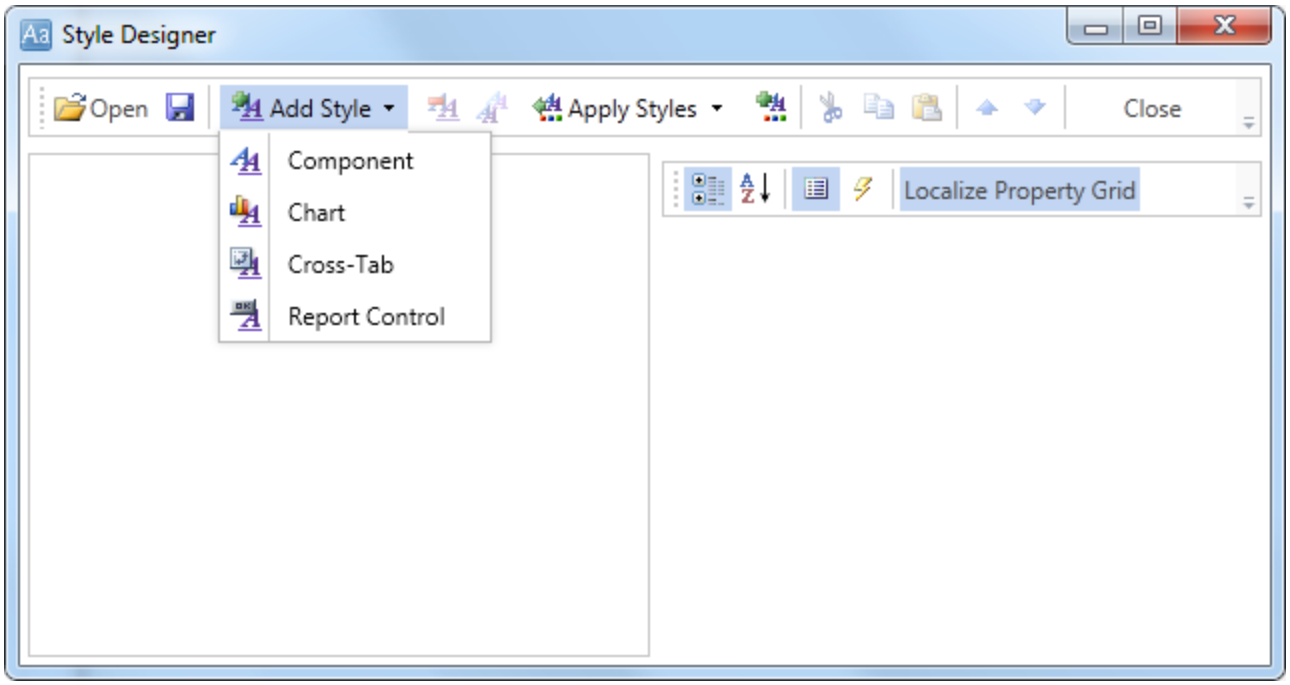


Click the **Add Style** button to start creating a style. Select **Component** from the drop down list. Set the **Brush.Color** property to change the background color of a row. The picture below shows a sample of the **Style Designer** with the list of values of the **Brush.Color** property:

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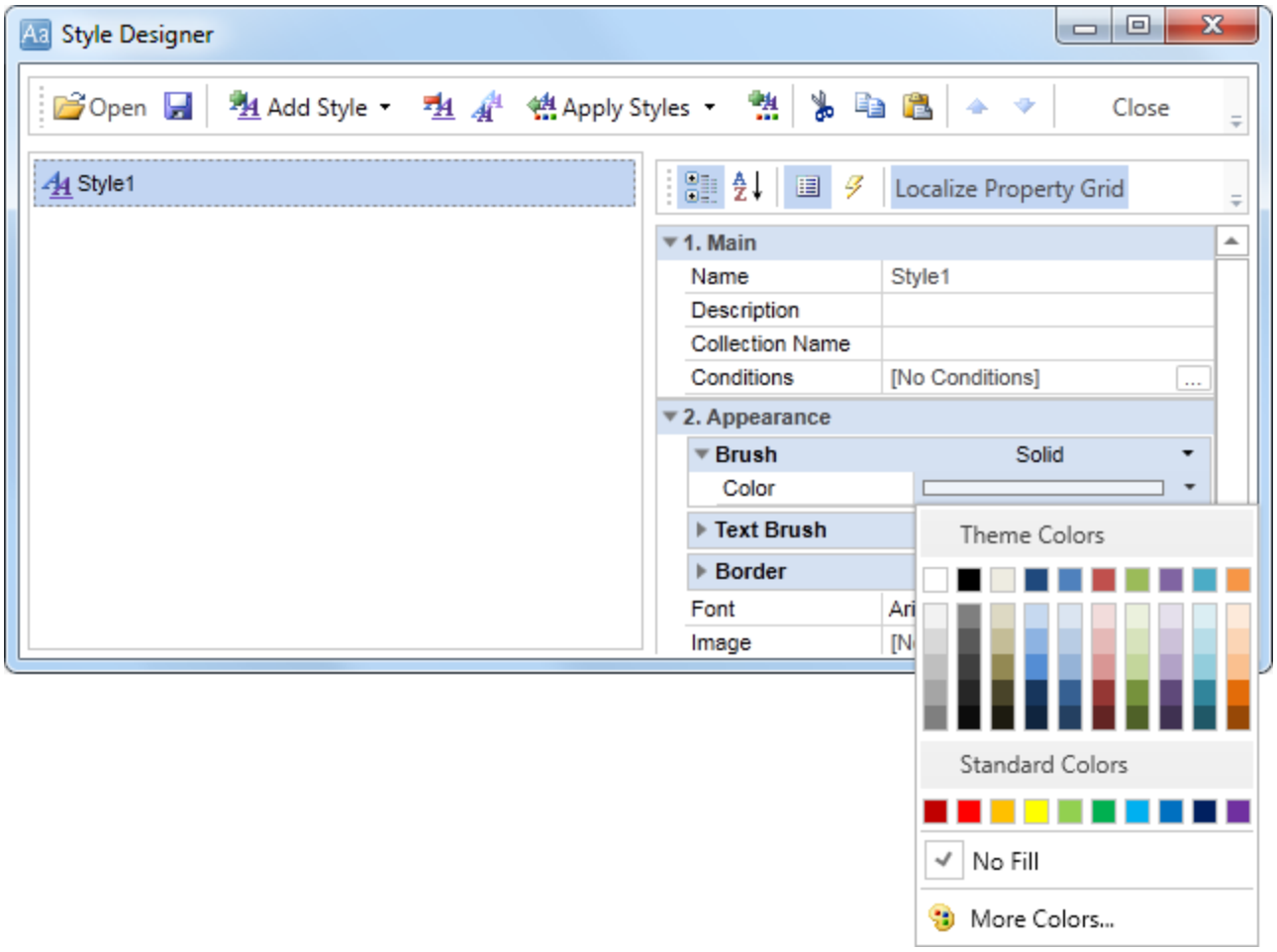


Click **Close**. Then a new value in the list of **Even style** and **Odd style** properties (a style of a list of odd and even rows) will appear.

4. To render the report, click the **Preview** button or invoke the **Viewer**, pressing **F5** or clicking the **Preview** menu item.

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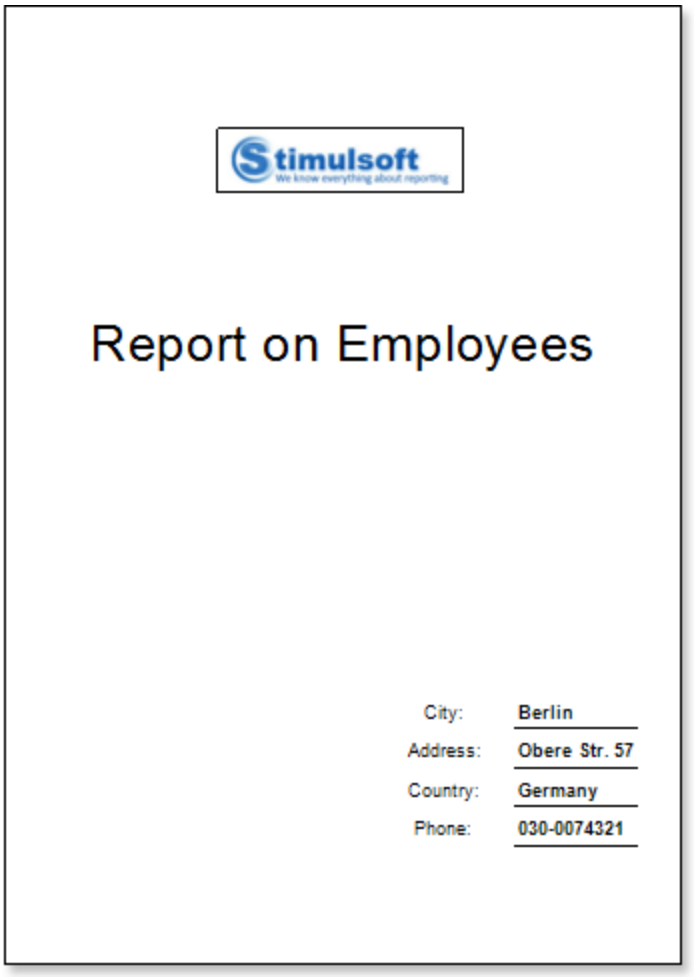


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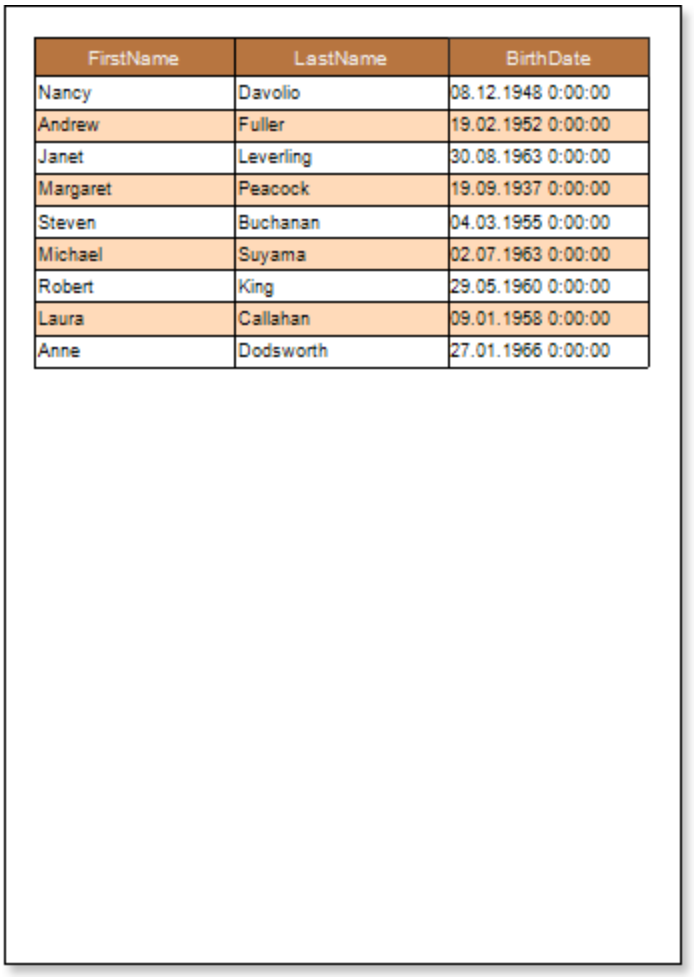

| FirstName | LastName | BirthDate |
|---|---|---|
| Nancy | Davolio | 08.12.1948 0:00:00 |
| Andrew | Fuller | 19.02.1952 0:00:00 |
| Janet | Leverling | 30.08.1963 0:00:00 |
| Margaret | Peacock | 19.09.1937 0:00:00 |
| Steven | Buchanan | 04.03.1955 0:00:00 |
| Michael | Suyama | 02.07.1963 0:00:00 |
| Robert | King | 29.05.1960 0:00:00 |
| Laura | Callahan | 09.01.1958 0:00:00 |
| Anne | Dodsworth | 27.01.1966 0:00:00 |

## 4.20 Report with Segmented Pages

If data in a report should be placed on a single page by width or height, and a page size is small, you can add the required number of segments by width and/or height. In this case, one segment is a whole page and summary page consists of several segments across by width or height. In order to design a report with segmented pages, follow the steps below:

1. Run the designer;
2. Connect the data:
    2.1. Create a **New Connection**;
    2.2. Create a **New Data Source**;

3. Define the number of segments by height and/or width. For example, set the **Segment per Height** property to **2**, i.e. the number of segments by height is **2**.
4. Put the **DataBand** on a segment of the report template.

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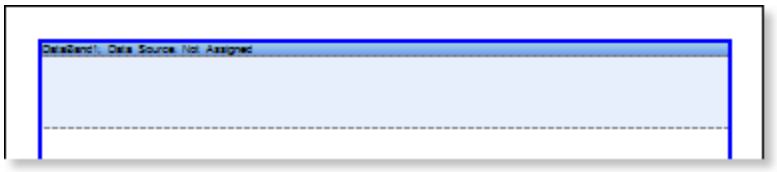
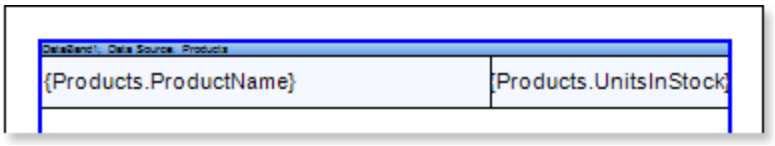



5. Edit **DataBand**:
   5.1. Align the **DataBand** by height;
   5.2. Change values of band properties. For example, set the **Can Break** property to **true**, if you wish the data band to be broken;
   5.3. Change the **DataBand** background;
   5.4. Enable **Borders** for the **DataBand**, if required;
   5.5. Change the border color.
6. Specify the data source in the **DataBand** using the **Data Source** property:

7. Put text components with expressions on **DataBands**. Where expression is a reference to the data field. For example, put two text components with the following expressions: **{Products.ProductName}** and **{Products.UnitsInStock}**;
8. Edit **Text** and **TextBox** component:
   8.1. Drag and drop the text component in **DataBands**;
   8.2. Change parameters of the text font: size, type, color;
   8.3. Align the text component by width and height;
   8.4. Change the background of the text component;
   8.5. Align text in the text component;
   8.6. Change the value of properties of the text component. For example, set the **Word Wrap** property to **true**, if you need a text to be wrapped;
   8.7. Enable **Borders** for the text component, if required.
   8.8. Change the border color.




9. Click the **Preview** button or invoke the **Viewer**, pressing **F5** or clicking the **Preview** menu item. After rendering all references to data fields will be changed on data form specified fields. Data will be output in consecutive order from the database that was defined for this report. The amount of copies of the **DataBand** in the rendered report will be the same as the amount of data rows in the database.

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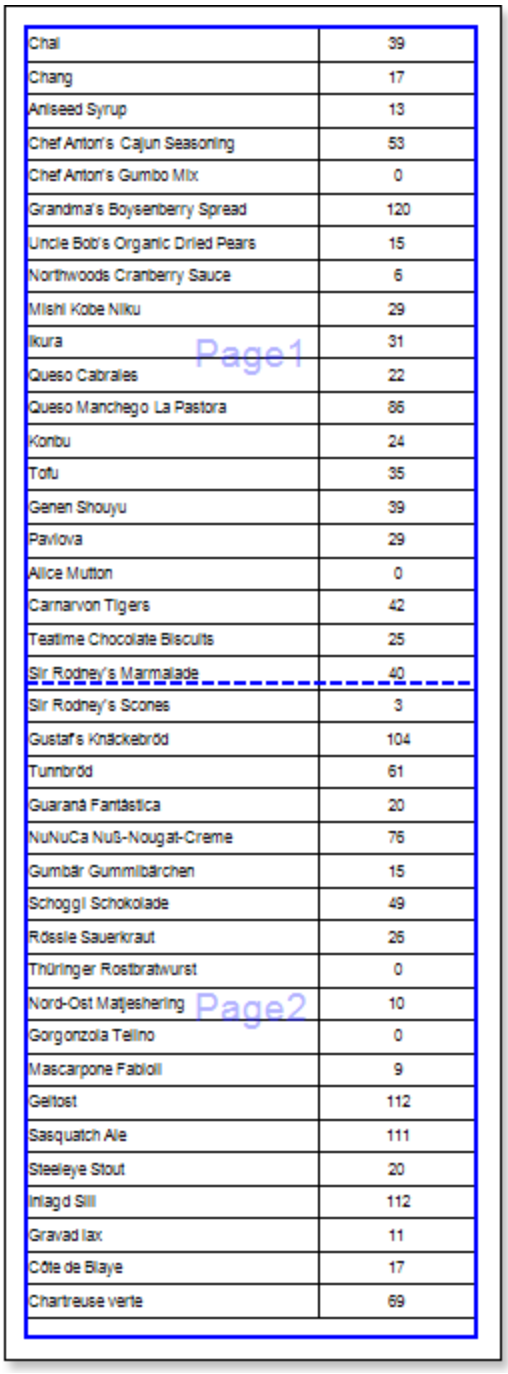

| | |
|---|---|
| Chai | 39 |
| Chang | 17 |
| Aniseed Syrup | 13 |
| Chef Anton's Cajun Seasoning | 53 |
| Chef Anton's Gumbo Mix | 0 |
| Grandma's Boysenberry Spread | 120 |
| Uncle Bob's Organic Dried Pears | 15 |
| Northwoods Cranberry Sauce | 6 |
| Mishi Kobe Niku | 29 |
| Ikura | 31 |
| Queso Cabrales | 22 |
| Queso Manchego La Pastora | 86 |
| Konbu | 24 |
| Tofu | 35 |
| Genen Shouyu | 39 |
| Pavlova | 29 |
| Alice Mutton | 0 |
| Carnarvon Tigers | 42 |
| Teatime Chocolate Biscuits | 25 |
| Sir Rodney's Marmalade | 40 |
| Sir Rodney's Scones | 3 |
| Gustaf's Knäckebröd | 104 |
| Tunnbröd | 61 |
| Guaraná Fantástica | 20 |
| NuNuCa Nuß-Nougat-Creme | 76 |
| Gumbär Gummibärchen | 15 |
| Schoggi Schokolade | 49 |
| Rössle Sauerkraut | 26 |
| Thüringer Rostbratwurst | 0 |
| Nord-Ost Matjeshering | 10 |
| Gorgonzola Telino | 0 |
| Mascarpone Fabioli | 9 |
| Geitost | 112 |
| Sasquatch Ale | 111 |
| Steeleye Stout | 20 |
| Inlagd Sill | 112 |
| Gravad lax | 11 |
| Côte de Blaye | 17 |
| Chartreuse verte | 69 |

Page1

Page2

10. Add other bands to the report template, for example, the **HeaderBand**;
11. Edit this bands:
    11.1. Align it by height;
    11.2. Change values of properties, if required;
    11.3. Change the background of bands;
    11.4. Enable **Borders**, if required;
    11.5. Set the border color.

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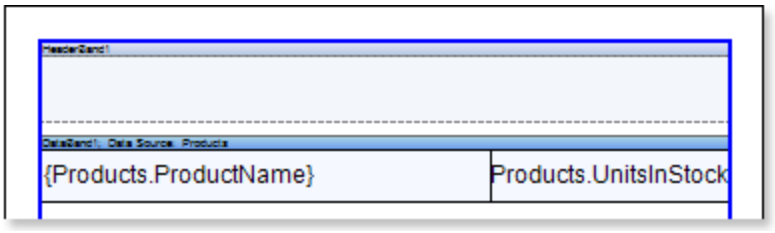
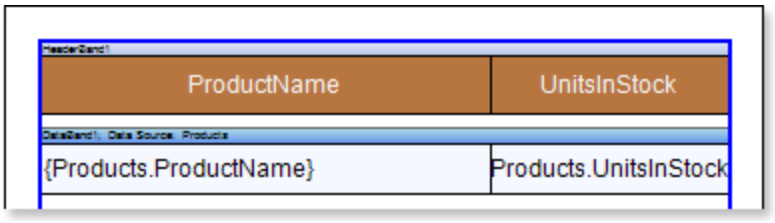



12. Put text components with expressions in the band. The expression in the text component is a header in the **HeaderBand**.
13. Edit text and text component:
    13.1. Drag and drop the text component in the band;
    13.2. Change font options: size, type, color;
    13.3. Align text component by height and width;
    13.4. Change the background of the text component;
    13.5. Align text in the text component;
    13.6. Change values of text component properties, if required;
    13.7. Enable **Borders** of the text component, if required;
    13.8. Set the border color.




14. Click the **Preview** button or invoke the **Viewer**, pressing **F5** or clicking the **Preview** menu item.

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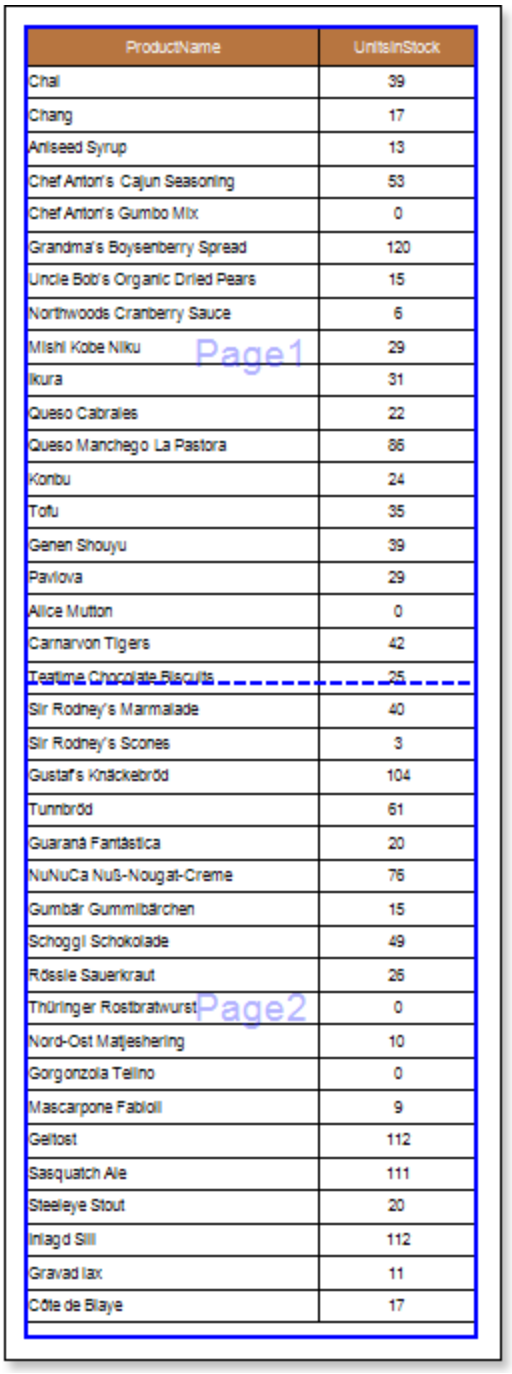

| ProductName | UnitsInStock |
|---|---|
| Chai | 39 |
| Chang | 17 |
| Aniseed Syrup | 13 |
| Chef Anton's Cajun Seasoning | 53 |
| Chef Anton's Gumbo Mix | 0 |
| Grandma's Boysenberry Spread | 120 |
| Uncle Bob's Organic Dried Pears | 15 |
| Northwoods Cranberry Sauce | 6 |
| Mishi Kobe Niku | 29 |
| Ikura | 31 |
| Queso Cabrales | 22 |
| Queso Manchego La Pastora | 86 |
| Konbu | 24 |
| Tofu | 35 |
| Genen Shouyu | 39 |
| Pavlova | 29 |
| Alice Mutton | 0 |
| Carnarvon Tigers | 42 |
| Teatime Chocolate Biscuits | 25 |
| Sir Rodney's Marmalade | 40 |
| Sir Rodney's Scones | 3 |
| Gustaf's Knäckebröd | 104 |
| Tunnbröd | 61 |
| Guaraná Fantástica | 20 |
| NuNuCa Nuß-Nougat-Creme | 76 |
| Gumbär Gummibärchen | 15 |
| Schoggi Schokolade | 49 |
| Rössle Sauerkraut | 26 |
| Thüringer Rostbratwurst | 0 |
| Nord-Ost Matjeshering | 10 |
| Gorgonzola Telino | 0 |
| Mascarpone Fabioli | 9 |
| Geitost | 112 |
| Sasquatch Ale | 111 |
| Steeleye Stout | 20 |
| Inlagd Sill | 112 |
| Gravad lax | 11 |
| Côte de Blaye | 17 |

Page1

Page2

## Adding Styles

1. Go back to the report template;
2. Select **DataBand**;
3. Change values of **Even style** and **Odd style** properties. If values of these properties are not set, then select the **Edit Styles** in the list of values of these properties and, using **Style Designer**, create a new style. The picture below shows the **Style Designer**:

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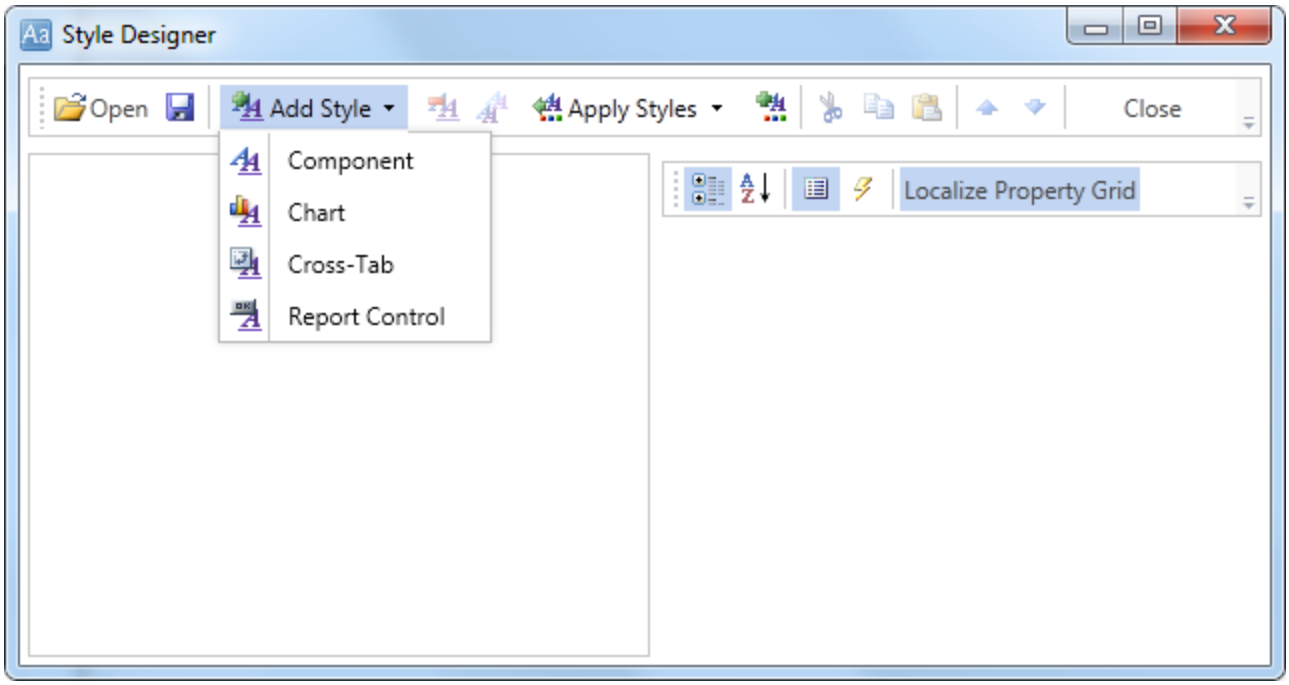


Click the **Add Style** button to start creating a style. Select **Component** from the drop down list. Set the **Brush.Color** property to change the background color of a row. The picture below shows a sample of the **Style Designer** with the list of values of the **Brush.Color** property:

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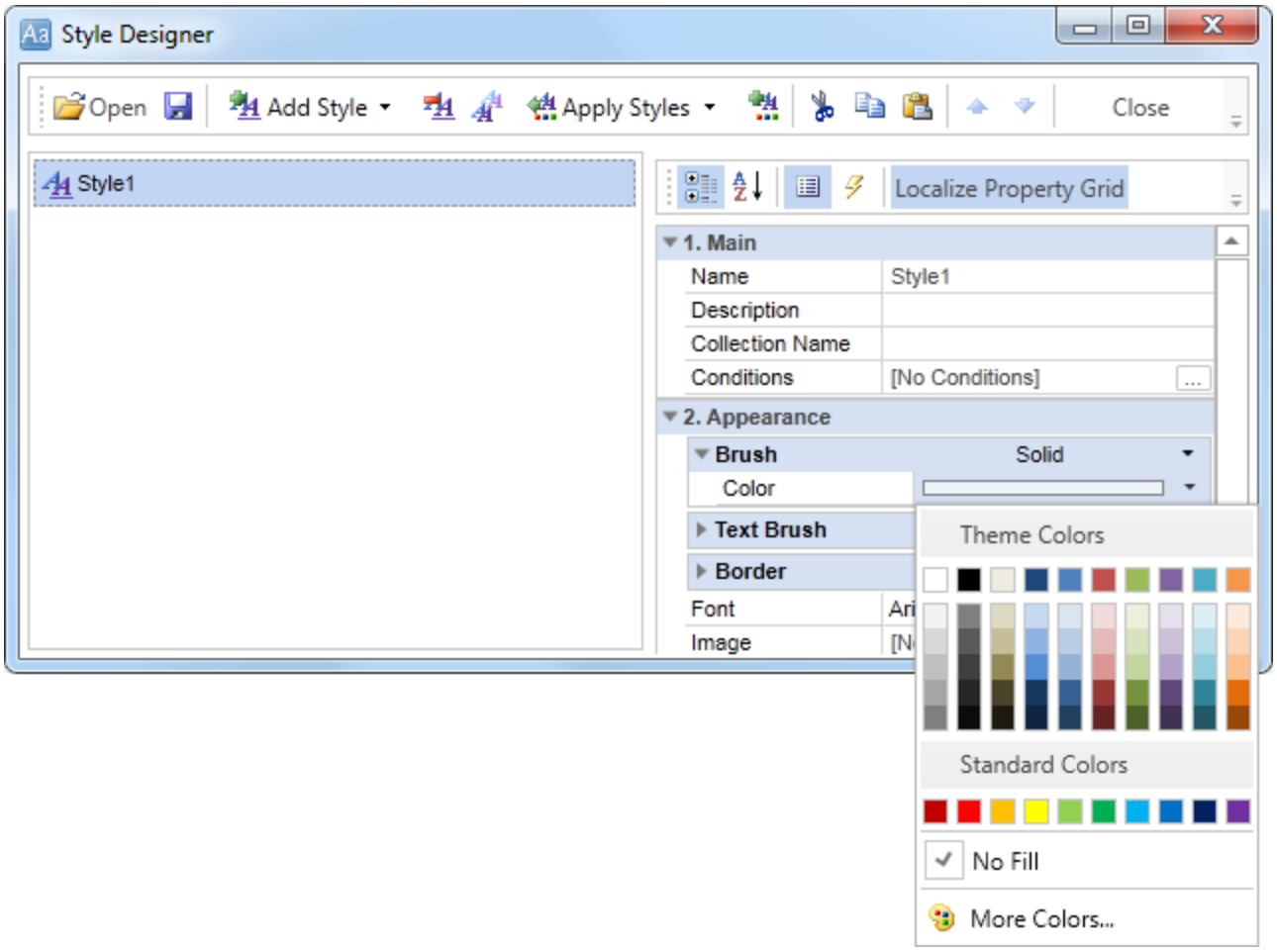


Click **Close**. Then a new value in the list of **Even style** and **Odd style** properties (a style of a list of odd and even rows) will appear.

4. To render the report, click the **Preview** button or invoke the **Viewer**, pressing **F5** or clicking the **Preview** menu item.

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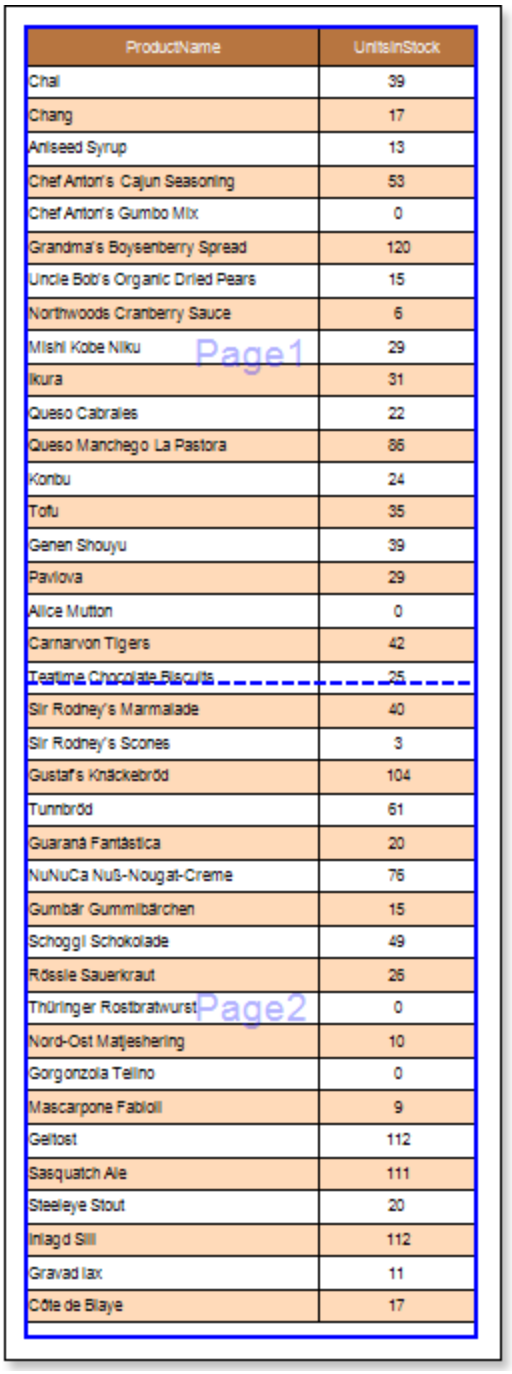

| ProductName | UnitsInStock |
|---|---|
| Chai | 39 |
| Chang | 17 |
| Aniseed Syrup | 13 |
| Chef Anton's Cajun Seasoning | 53 |
| Chef Anton's Gumbo Mix | 0 |
| Grandma's Boysenberry Spread | 120 |
| Uncle Bob's Organic Dried Pears | 15 |
| Northwoods Cranberry Sauce | 6 |
| Mishi Kobe Niku | 29 |
| Ikura | 31 |
| Queso Cabrales | 22 |
| Queso Manchego La Pastora | 86 |
| Konbu | 24 |
| Tofu | 35 |
| Genen Shouyu | 39 |
| Pavlova | 29 |
| Alice Mutton | 0 |
| Carnarvon Tigers | 42 |
| Teatime Chocolate Biscuits | 25 |
| Sir Rodney's Marmalade | 40 |
| Sir Rodney's Scones | 3 |
| Gustaf's Knäckebröd | 104 |
| Tunnbröd | 61 |
| Guaraná Fantástica | 20 |
| NuNuCa Nuß-Nougat-Creme | 76 |
| Gumbär Gummibärchen | 15 |
| Schoggi Schokolade | 49 |
| Rössle Sauerkraut | 26 |
| Thüringer Rostbratwurst | 0 |
| Nord-Ost Matjeshering | 10 |
| Gorgonzola Telino | 0 |
| Mascarpone Fabioli | 9 |
| Geitost | 112 |
| Sasquatch Ale | 111 |
| Steeleye Stout | 20 |
| Inlagd Sill | 112 |
| Gravad lax | 11 |
| Côte de Blaye | 17 |

Page1

Page2

## 4.21 Report with Primitives on Page

For better understanding this step-by-step instruction, please watch the video file.

Primitives are: **Horizontal Line**, **Vertical Line**, **Rectangle** and **Rounded Rectangle**. Besides, you may use the **Shape** component. When placing a primitive on a page, the primitive will be rendered as a page item. In order to design a report with primitives on a page, follow the steps below:

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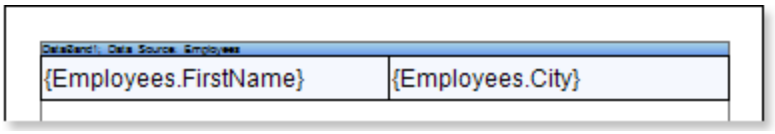
1. Run the designer;
2. Connect the data:
    2.1. Create a **New Connection**;
    2.2. Create a **New Data Source**;

3. Put the **DataBand** on a page of a report template.

4. Edit **DataBand**:
    4.1. Align the **DataBand** by height;
    4.2. Change values of band properties. For example, set the **Can Shrink** property to **true**, if you wish the data band to be broken;
    4.3. Change the **DataBand** background;
    4.4. Enable **Borders** for the **DataBand**, if required;
    4.5. Change the border color.

5. Define the data source for the **DataBand** using the **Data Source** property:

6. Put text components with expressions on the **DataBand**. Where expression is a reference to the data field. For example, put two text components with expressions: **{Employees.FirstName}** and **{Employees.City}**;
7. Edit **Text** and **TextBox** component:
    7.1. Drag and drop the text component in the **DataBand**;
    7.2. Change parameters of the text font: size, type, color;
    7.3. Align the text component by width and height;
    7.4. Change the background of the text component;
    7.5. Align text in the text component;
    7.6. Change the value of properties of the text component. For example, set the **Word Wrap** property to **true**, if you need a text to be wrapped;
    7.7. Enable **Borders** for the text component, if required.
    7.8. Change the border color.




8. Click the **Preview** button or invoke the **Viewer**, pressing **F5** or clicking the **Preview** menu item.

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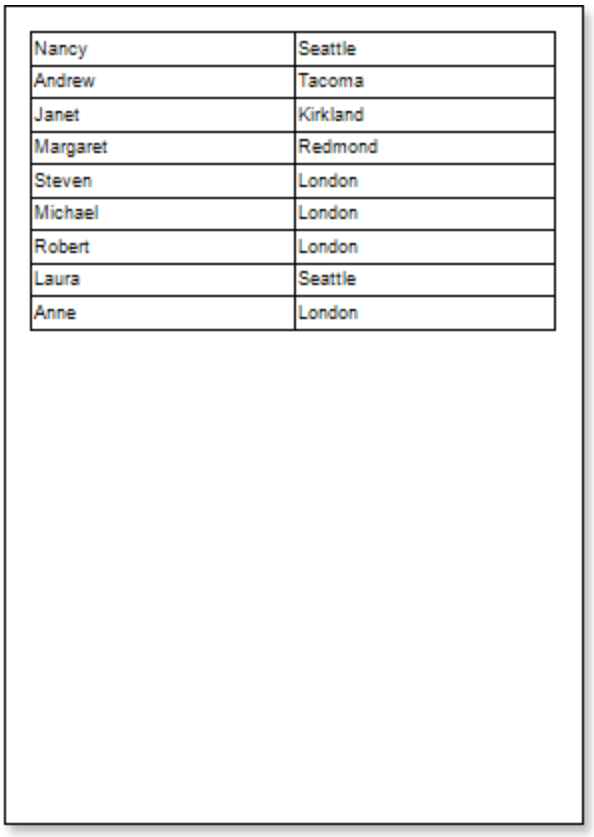

| | |
|---|---|
| Nancy | Seattle |
| Andrew | Tacoma |
| Janet | Kirkland |
| Margaret | Redmond |
| Steven | London |
| Michael | London |
| Robert | London |
| Laura | Seattle |
| Anne | London |

9. Go back to the report template.
10. Add the **Shape** component to a report template and edit it:
    10.1. Drag and drop the **Shape** component on the page;
    10.2. Change the type of a shape using the **Shape Type** property. Set the **Shape Type** property to **Complex Arrow**;
    10.3. Stretch the **Shape** component horizontally and vertically;
    10.4. Change the value of other properties. For example, set the **Grow to Height** property to **true**.

The picture below shows a report template with the **Shape** component placed on the report page:

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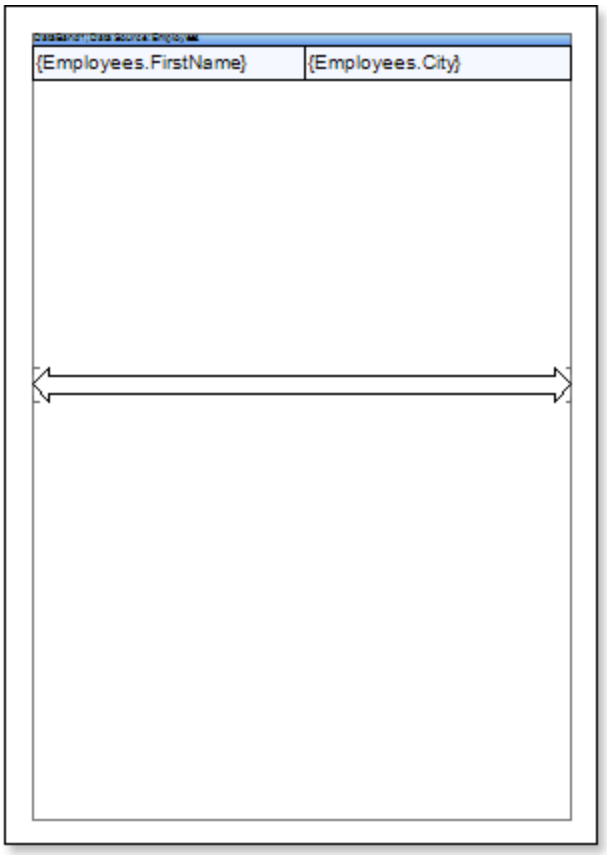


11. Click the **Preview** button or invoke the **Viewer**, pressing **F5** or clicking the **Preview** menu item.

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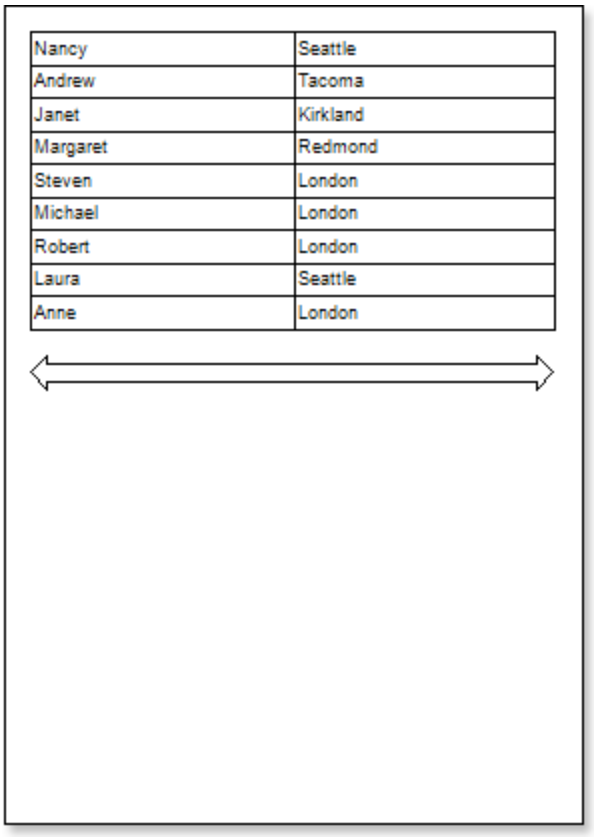


12. Go back to the report template.
13. If needed, add other bands to the report template, for example, **HeaderBand**;
14. Edit this bands:
    14.1. Align it by height;
    14.2. Change values of properties, if required;
    14.3. Change the background color of the band;
    14.4. Enable **Borders**, if required;
    14.5. Set the border color.

The picture below shows a report template with a **HeaderBand**:

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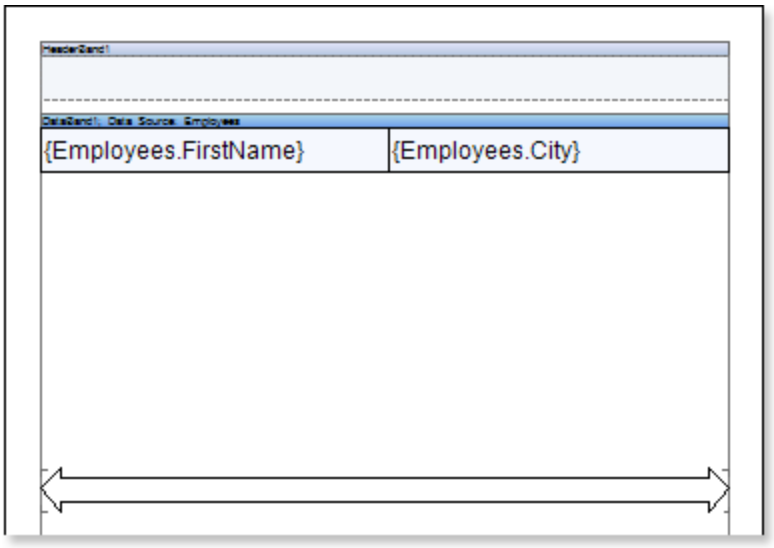
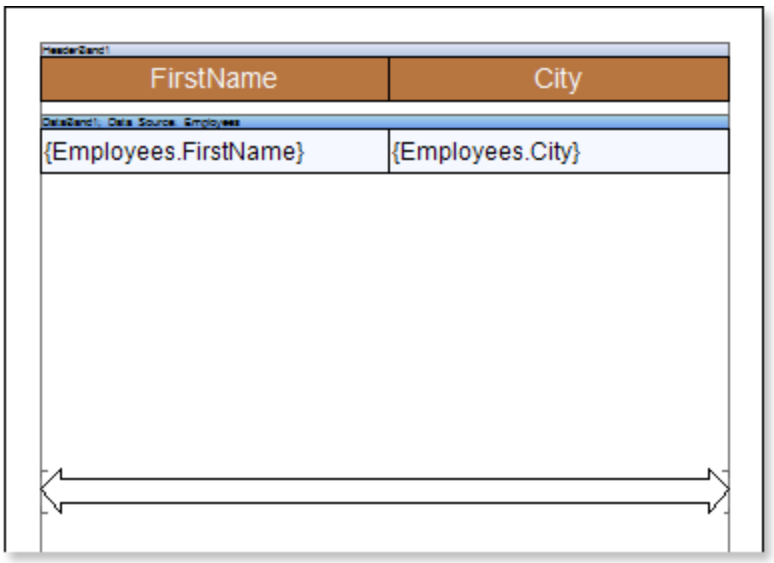



15. Put text components with expressions in the this band. The expression in the text component is a header in the **HeaderBand**.
16. Edit text and text components:
    16.1. Drag and drop the text component in the band;
    16.2. Change font options: size, type, color;
    16.3. Align text component by height and width;
    16.4. Change the background of the text component;
    16.5. Align text in the text component;
    16.6. Change values of text component properties, if required;
    16.7. Enable **Borders** of the text component, if required;
    16.8. Set the border color.




17. Click the **Preview** button or invoke the **Viewer**, pressing **F5** or clicking the **Preview** menu item. After rendering all references to data fields will be changed on data form specified fields. Data will be output in consecutive order from the database that was defined for this report. The amount of copies

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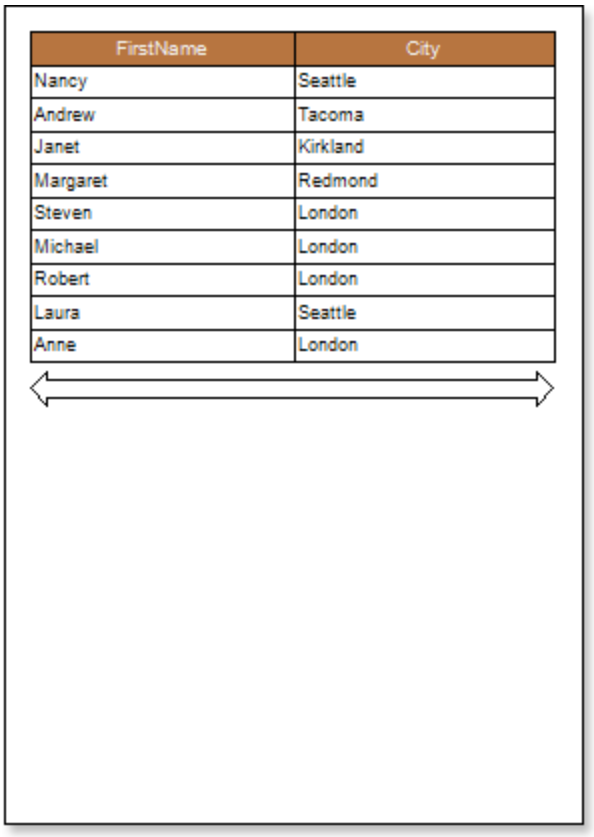
of the **DataBand** in the rendered report will be the same as the amount of data rows in the database.



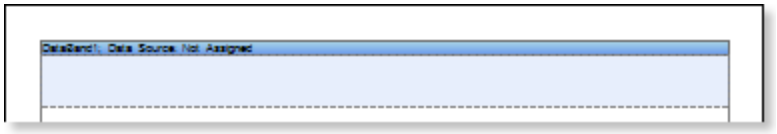

## 4.22 Report with Primitives in Band

For better understanding this step-by-step instruction, please watch the video file.

Primitives are: **Horizontal Line**, **Vertical Line**, **Rectangle** and **Rounded Rectangle**. Besides, you may use the **Shape** component. When placing a primitive on a band, the primitive will be rendered on a page as many times as the band will be printed. In order to design a report with primitives on a band, follow the steps below:

1. Run the designer;
2. Connect the data:
    2.1. Create a **New Connection**;
    2.2. Create a **New Data Source**;

3. Put the **DataBand** on a page of a report template.



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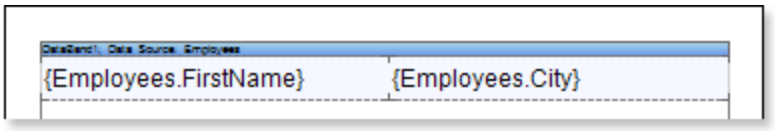
4. Edit **DataBand**:
   4.1. Align the **DataBand** by height;
   4.2. Change values of band properties. For example, set the **Can Shrink** property to **true**, if you wish the data band to be broken;
   4.3. Change the **DataBand** background;
   4.4. Enable **Borders** for the **DataBand**, if required;
   4.5. Change the border color.

5. Define the data source for the **DataBand** using the **Data Source** property:

6. Put text components with expressions on the **DataBand**. Where expression is a reference to the data field. For example, put two text components with expressions: **{Employees.FirstName}** and **{Employees.City}**;
7. Edit **Text** and **TextBox** component:
   7.1. Drag and drop the text component in the **DataBand**;
   7.2. Change parameters of the text font: size, type, color;
   7.3. Align the text component by width and height;
   7.4. Change the background of the text component;
   7.5. Align text in the text component;
   7.6. Change the value of properties of the text component. For example, set the **Word Wrap** property to **true**, if you need a text to be wrapped;
   7.7. Enable **Borders** for the text component, if required.
   7.8. Change the border color.




8. Click the **Preview** button or invoke the **Viewer**, pressing **F5** or clicking the **Preview** menu item.

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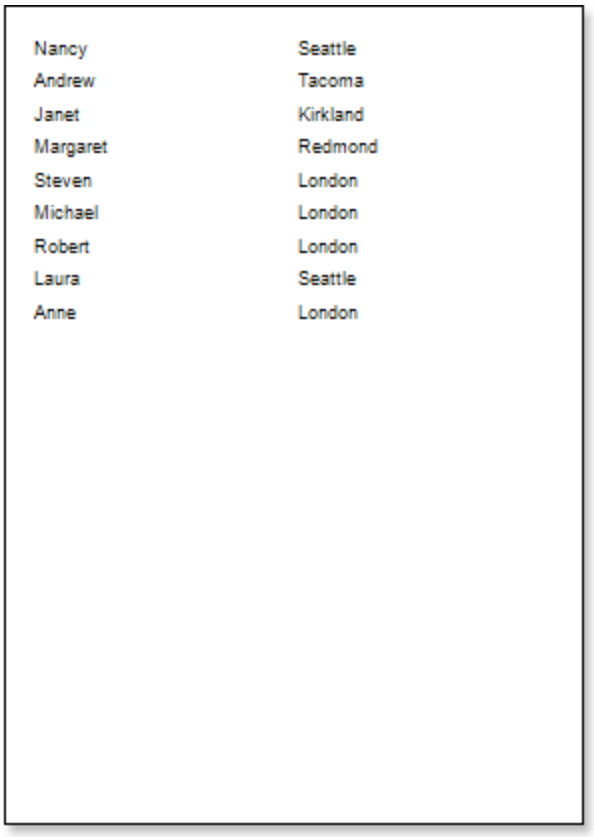
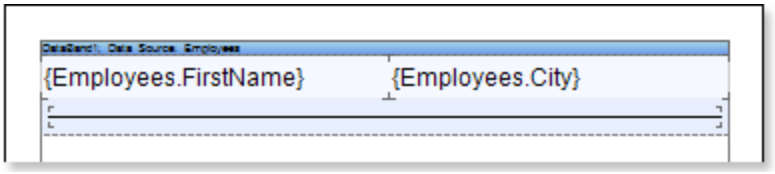



9. Go back to the report template.
10. Add the **Shape** component to a report template in the **DataBand** and edit it:
    10.1. Drag and drop the **Shape** component on the page;
    10.2. Change the type of a shape using the **Shape Type** property. Set the **Shape Type** property to **Complex Arrow**;
    10.3. Stretch the **Shape** component horizontally and vertically;
    10.4. Change the value of other properties. For example, set the **Grow to Height** property to **true**.

The picture below shows a report template with the **Shape** component placed on the report page:




11. Click the **Preview** button or invoke the **Viewer**, pressing **F5** or clicking the **Preview** menu item.

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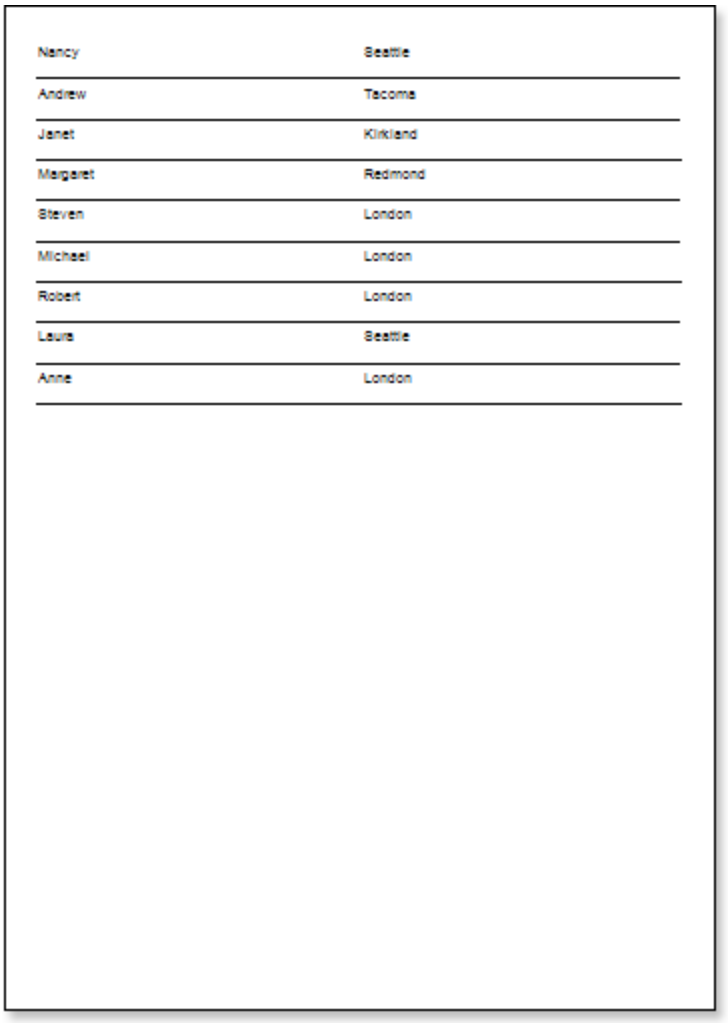
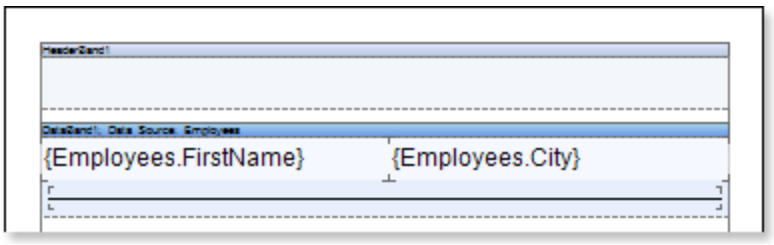


| | |
|---|---|
| Nancy | Seattle |
| Andrew | Tacoma |
| Janet | Kirkland |
| Margaret | Redmond |
| Steven | London |
| Michael | London |
| Robert | London |
| Laura | Seattle |
| Anne | London |

12. Go back to the report template.
13. If needed, add other bands to the report template, for example, **HeaderBand**;
14. Edit this bands:
    14.1. Align it by height;
    14.2. Change values of properties, if required;
    14.3. Change the background color of the band;
    14.4. Enable **Borders**, if required;
    14.5. Set the border color.

The picture below shows a report template with a **HeaderBand**:

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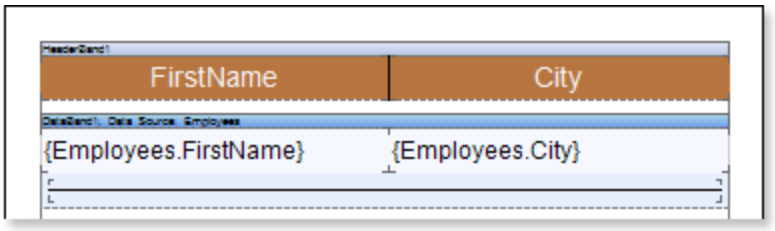
15. Put text components with expressions in the this band. The expression in the text component is a header in the **HeaderBand**.
16. Edit text and text components:
    16.1. Drag and drop the text component in the band;
    16.2. Change font options: size, type, color;
    16.3. Align text component by height and width;
    16.4. Change the background of the text component;
    16.5. Align text in the text component;
    16.6. Change values of text component properties, if required;
    16.7. Enable **Borders** of the text component, if required;
    16.8. Set the border color.




17. Click the **Preview** button or invoke the **Viewer**, pressing **F5** or clicking the **Preview** menu item. After rendering all references to data fields will be changed on data form specified fields. Data will be output in consecutive order from the database that was defined for this report. The amount of copies of the **DataBand** in the rendered report will be the same as the amount of data rows in the database.

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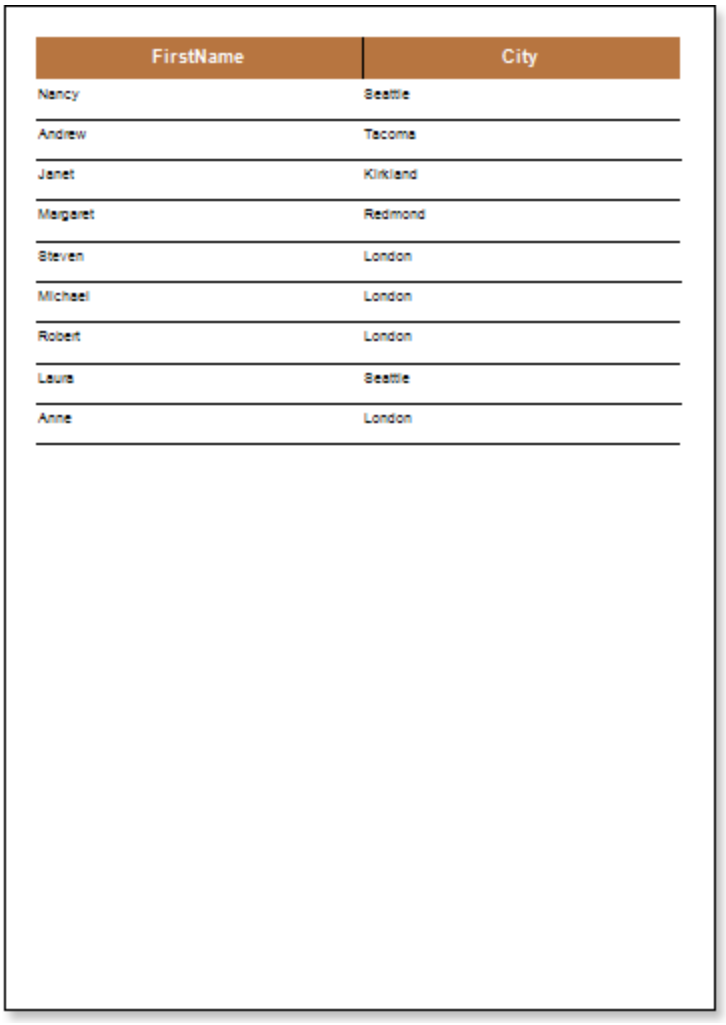

| FirstName | City |
|---|---|
| Nancy | Seattle |
| Andrew | Tacoma |
| Janet | Kirkland |
| Margaret | Redmond |
| Steven | London |
| Michael | London |
| Robert | London |
| Laura | Seattle |
| Anne | London |

## Adding Styles

1. Go back to the report template;
2. Select **DataBand**;
3. Change values of **Even style** and **Odd style** properties. If values of these properties are not set, then select the **Edit Styles** in the list of values of these properties and, using **Style Designer**, create a new style. The picture below shows the **Style Designer**:

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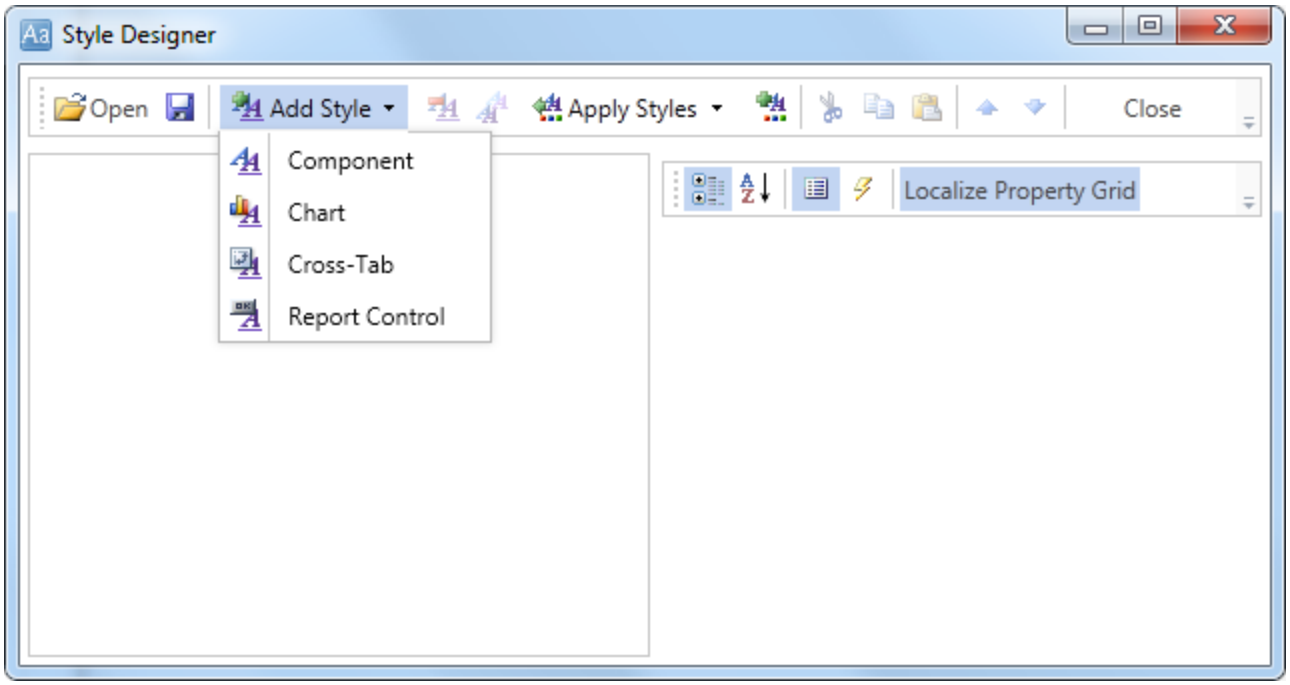
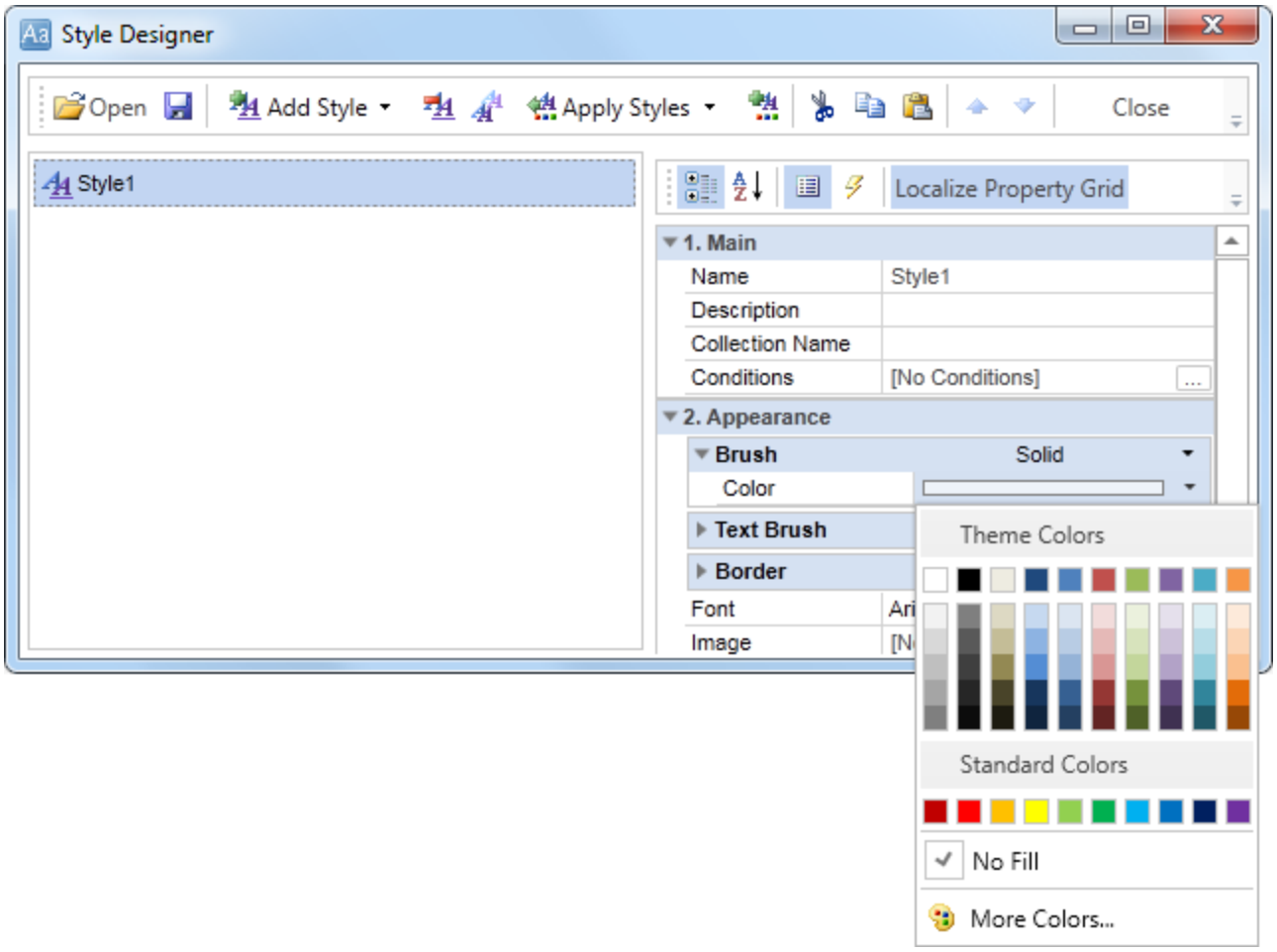



Click the **Add Style** button to start creating a style. Select **Component** from the drop down list. Set the **Brush.Color** property to change the background color of a row. The picture below shows a sample of the **Style Designer** with the list of values of the **Brush.Color** property:

© 2003-2013 Stimulsoft




Click **Close**. Then a new value in the list of **Even style** and **Odd style** properties (a style of a list of odd and even rows) will appear.

4. To render the report, click the **Preview** button or invoke the **Viewer**, pressing **F5** or clicking the **Preview** menu item.

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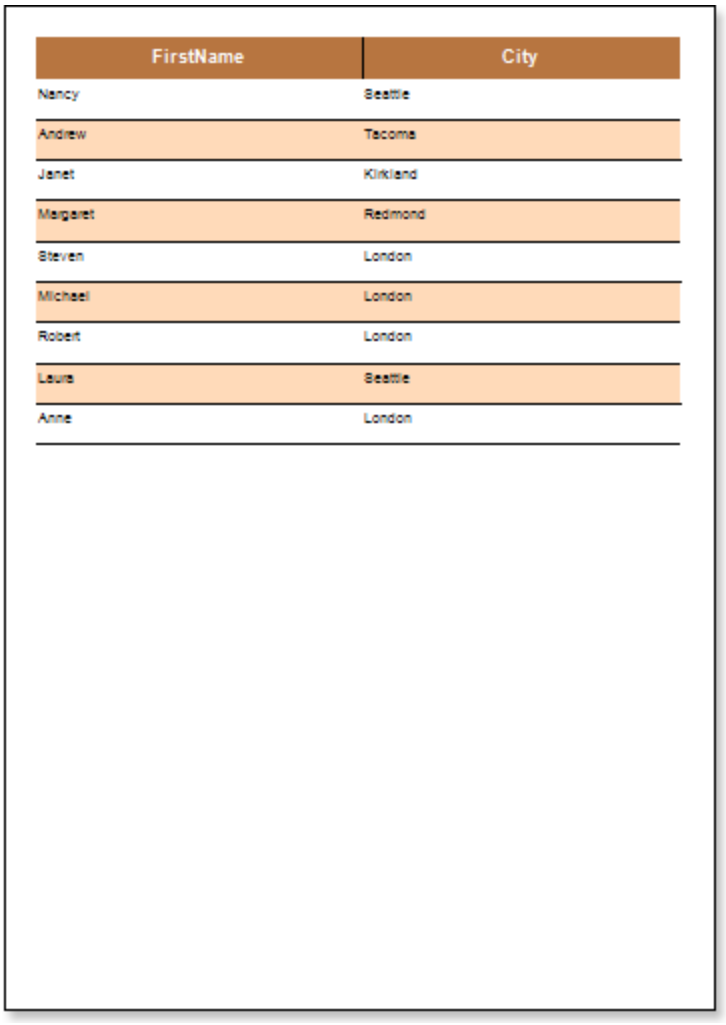

| FirstName | City |
|---|---|
| Nancy | Seattle |
| Andrew | Tacoma |
| Janet | Kirkland |
| Margaret | Redmond |
| Steven | London |
| Michael | London |
| Robert | London |
| Laura | Seattle |
| Anne | London |

## 4.23 Report with Cross-Primitives

For better understanding this step-by-step instruction, please watch the video file and another one.

Cross-primitives include: **Vertical Line**, **Rectangle** and **Rounded Rectangle**. The start and end points of cross-primitives can be placed on different components of a report. In order to design a report with cross-primitives, follow the steps below:

1. Run the designer;
2. Connect the data:
    2.1. Create a **New Connection**;
    2.2. Create a **New Data Source**;

3. Create a report or load previously saved one. For our example we take a Simple List Report report, described in **Simple List Report** article.

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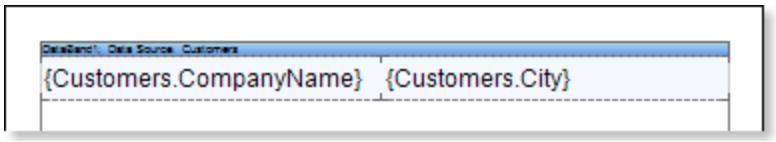
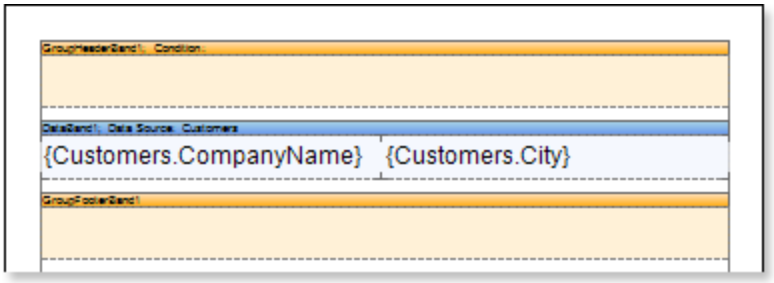
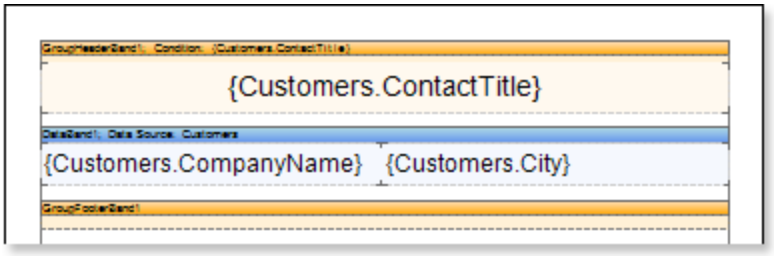



4. Add **GroupHeaderBand** and **GroupFooterBand** to a report template. The **GroupHeaderBand** should be placed above the **DataBand** to which it applies. The **GroupFooterBand** should be placed below the **DataBand**. And it is meant exactly the **DataBand**, that is associated with the **GroupHeaderBand**. Each **GroupFooterBand**, refers to a certain **GroupHeaderBand**. The **GroupFooterBand** will not be output without the **GroupHeaderBand**.




5. Edit the **GroupHeaderBand** and the **GroupFooterBand**:
   5.1. Align them by height;
   5.2. Change the values of the required properties. For example, set the **KeepGroupHeaderTogether** property for the **GroupHeaderBand** to **true**, if you want the **GroupHeaderBand** be kept with the group. And set the **KeepGroupFooterTogether** property for the **GroupFooterBand** to **true**, if you want this band be kept with the group;
   5.3. Set the background color for the **GroupHeaderBand**;
   5.4. If necessary, set the **Borders** for the **DataBand**;

6. Set the condition of data grouping in the report using the **Condition** property of the **GroupHeaderBand**. Condition for the grouping can be set by specifying an expression or by selecting a column from a data source. In this example, we specify the **{Customers.ContactTitle}** expression of the grouping condition, so, when rendering the report, a list of companies will be grouped by the **ContactTitle** column data.
7. Put a text component in the **GroupHeaderBand** with the following expression: **{Customers. ContactTitle}**. So when rendering the report, as a group header, the entries from the **ContactTitle** data column will be output. Put a text component in the **GroupFooterBand** with the following expression: **{Count ()}**. The **{Count ()}** function will count the number of entries in each group.




8. Edit expressions, and text components:

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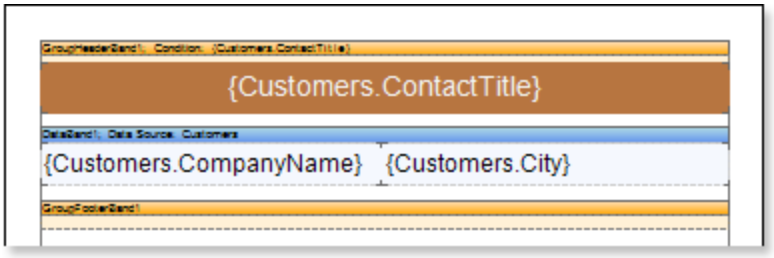
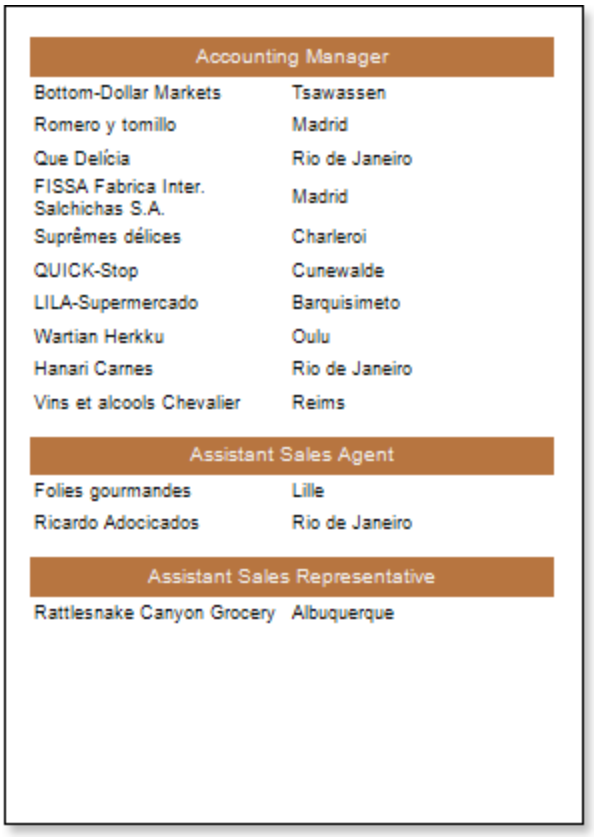
8.1. Drag and drop text components in the **GroupHeaderBand** and **GroupFooterBand**;
8.2. Set the font settings: size, style, color;
8.3. Align text components by height and width;
8.4. Set background color of text components;
8.5. Set the expression in the text components;
8.6. Set the value of the required properties;
8.7. Set **Borders** of text components, if required;
8.8. Set the border color.




9. Click the **Preview** button or invoke the **Viewer**, pressing **F5** or clicking the **Preview** menu item. After rendering a report all references to data fields will be changed on data from specified fields.




10. Go back to the report template;
11. Add the **Rectangle** cross-primitive to the report template. Starting points of the rectangle will lie in the **GroupHeaderBand**, and the end point will lie in the **GroupFooterBand**.

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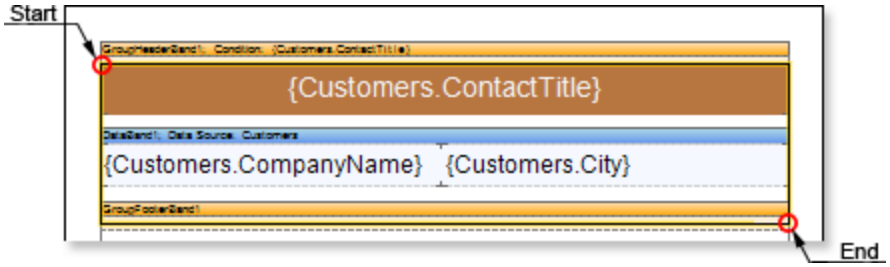
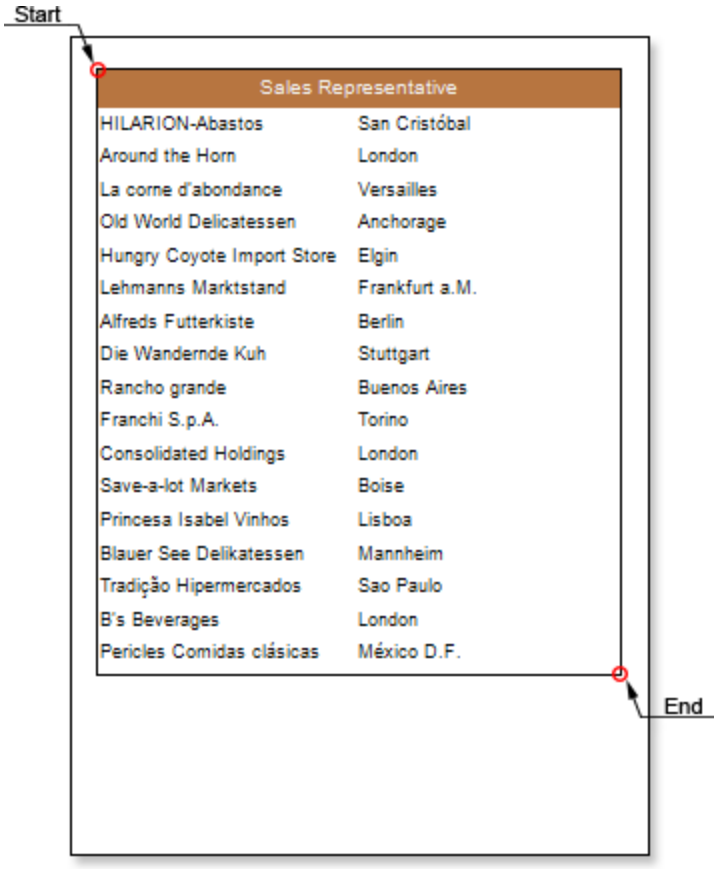


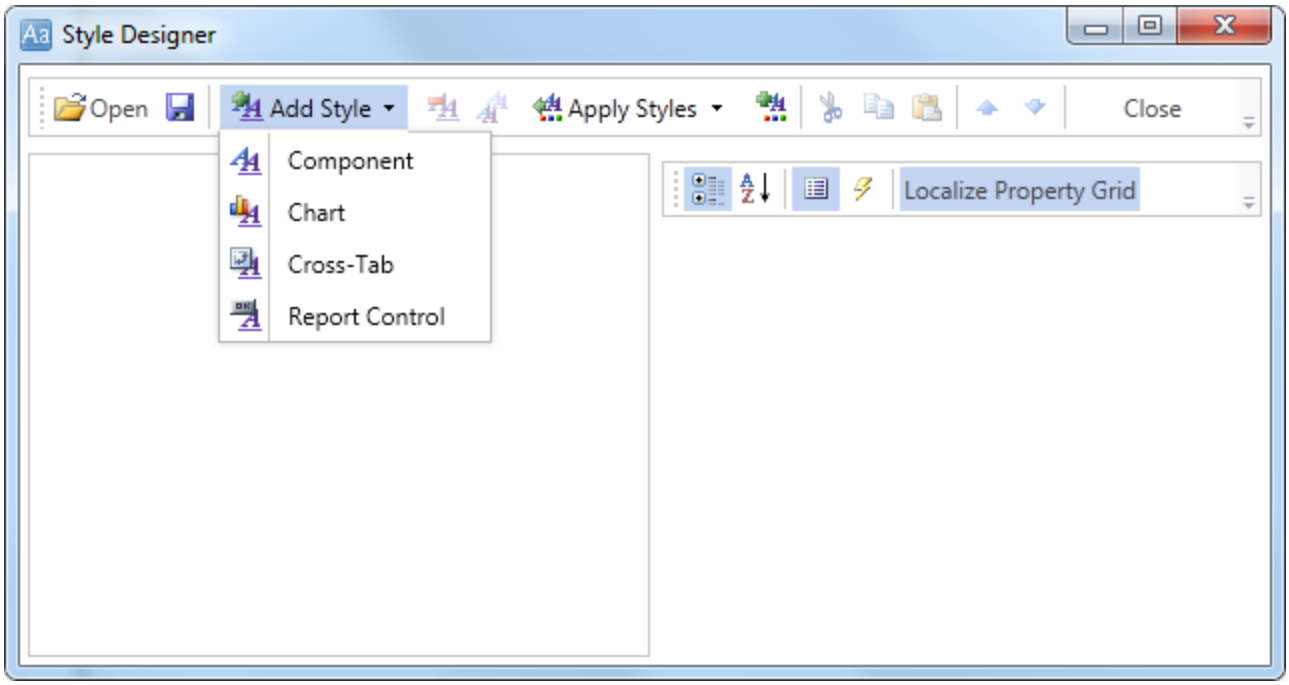

12. Click the **Preview** button or invoke the **Viewer**, pressing **F5** or clicking the **Preview** menu item. After rendering a report all references to data fields will be changed on data from specified fields. The picture below shows a rendered report page with grouping and the rendered **Rectangle** cross-primitive:




## Adding Styles

1. Go back to the report template;
2. Select **DataBand**;
3. Change values of **Even style** and **Odd style** properties. If values of these properties are not set, then select the **Edit Styles** in the list of values of these properties and, using **Style Designer**, create a new style. The picture below shows the **Style Designer**:

© 2003-2013 Stimulsoft




Click the **Add Style** button to start creating a style. Select **Component** from the drop down list. Set the **Brush.Color** property to change the background color of a row. The picture below shows a sample of the **Style Designer** with the list of values of the **Brush.Color** property:

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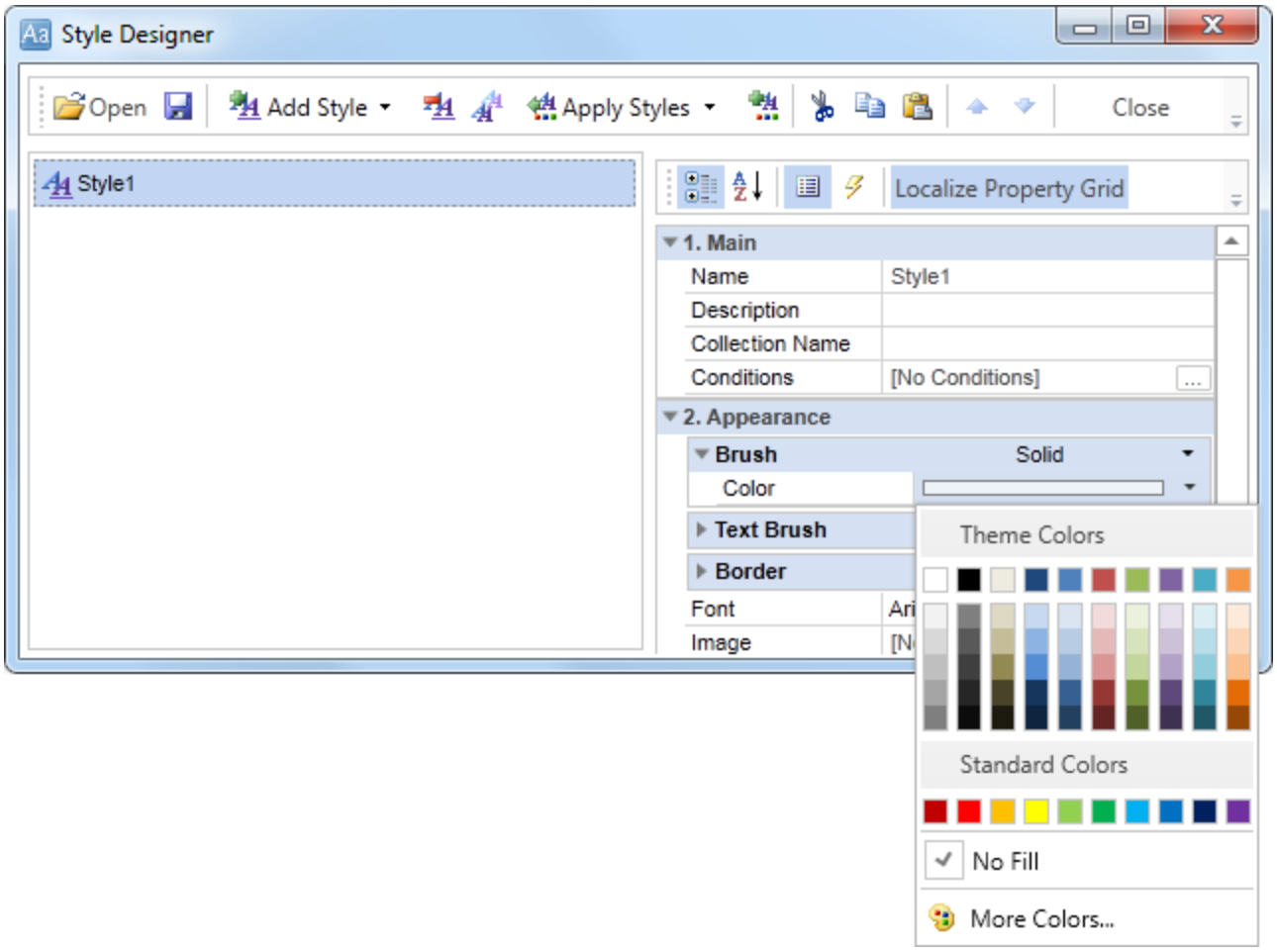


Click **Close**. Then a new value in the list of **Even style** and **Odd style** properties (a style of a list of odd and even rows) will appear.

4. To render the report, click the **Preview** button or invoke the **Viewer**, pressing **F5** or clicking the **Preview** menu item.

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| Sales Representative | |
|---|---|
| HILARION-Abastos | San Cristóbal |
| Around the Horn | London |
| La corne d'abondance | Versailles |
| Old World Delicatessen | Anchorage |
| Hungry Coyote Import Store | Elgin |
| Lehmanns Marktstand | Frankfurt a.M. |
| Alfreds Futterkiste | Berlin |
| Die Wandernde Kuh | Stuttgart |
| Rancho grande | Buenos Aires |
| Franchi S.p.A. | Torino |
| Consolidated Holdings | London |
| Save-a-lot Markets | Boise |
| Princesa Isabel Vinhos | Lisboa |
| Blauer See Delikatessen | Mannheim |
| Tradição Hipermercados | Sao Paulo |
| B's Beverages | London |
| Pericles Comidas clásicas | México D.F. |

## 4.24 Drill-Down Report

A Drill-Down report is an interactive report in what blocks can collapse/expand its content by clicking on the block title. Follow the steps below to create a report with dynamic folding in the preview window:

1. Run the designer;
2. Connect the data:
    2.1. Create a **New Connection**;
    2.2. Create a **New Data Source**;

3. Design a report or load already created one. For example, take a group report, which was reviewed in the "**Report with Grouping**". The picture below shows a report template with groups:

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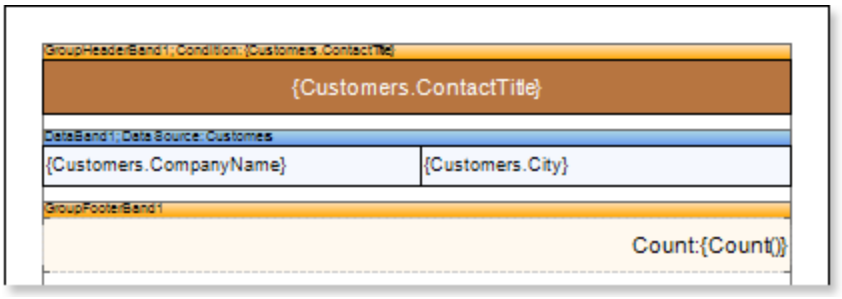
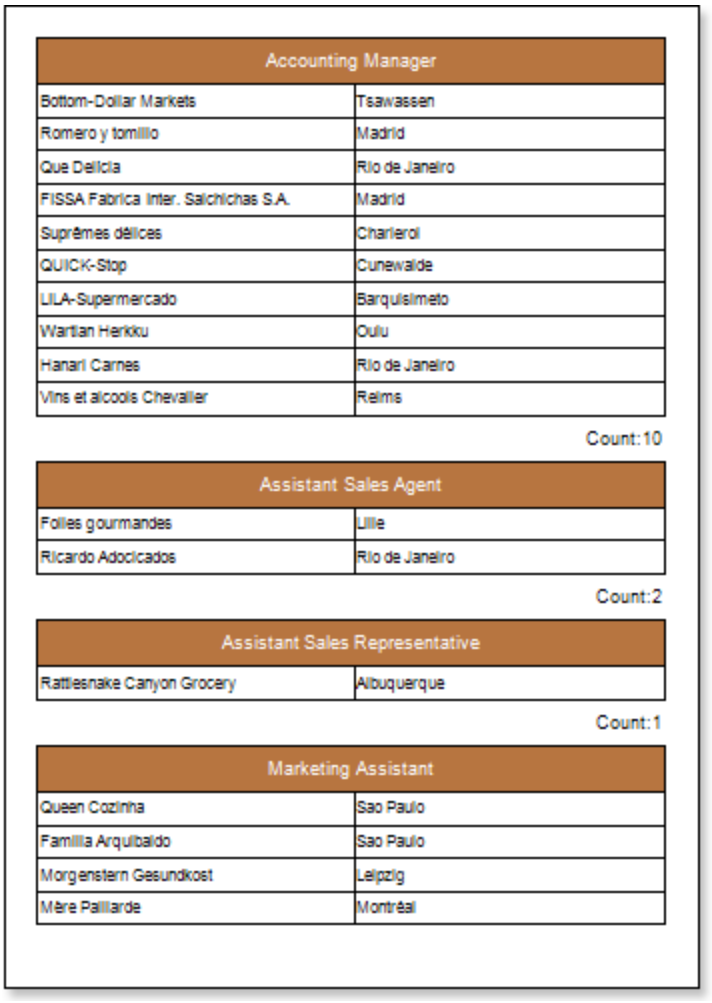



4. Click the **Preview** button or invoke the **Viewer**, pressing **F5** or clicking the **Preview** menu item. After rendering a report all references to data fields will be changed on data from specified fields.



| Accounting Manager | |
|---|---|
| Bottom-Dollar Markets | Tsawassen |
| Romero y tomillo | Madrid |
| Que Delícia | Rio de Janeiro |
| FISSA Fabrica Inter. Salchichas S.A. | Madrid |
| Suprêmes délices | Charleroi |
| QUICK-Stop | Cunewalde |
| LILA-Supermercado | Barquisimeto |
| Wartian Herkku | Oulu |
| Hanari Carnes | Rio de Janeiro |
| Vins et alcools Chevalier | Reims |

Count:10

| Assistant Sales Agent | |
|---|---|
| Folies gourmandes | Lille |
| Ricardo Adocicados | Rio de Janeiro |

Count:2

| Assistant Sales Representative | |
|---|---|
| Rattlesnake Canyon Grocery | Albuquerque |

Count:1

| Marketing Assistant | |
|---|---|
| Queen Cozinha | Sao Paulo |
| Familia Arquibaldo | Sao Paulo |
| Morgenstern Gesundkost | Leipzig |
| Mère Paillarde | Montréal |

5. Go back to the report template.
6. Select the **GroupHeaderBand.**
7. Set the **Interaction.Collapsing Enabled** property to **true.**
8. Change the value of the **Interaction.Collapsed** property. In our case, set the **Interaction.Collapsed** property to **{GroupLine! = 1}**. So, when rendering a report all the groups except the first one will be collapsed.

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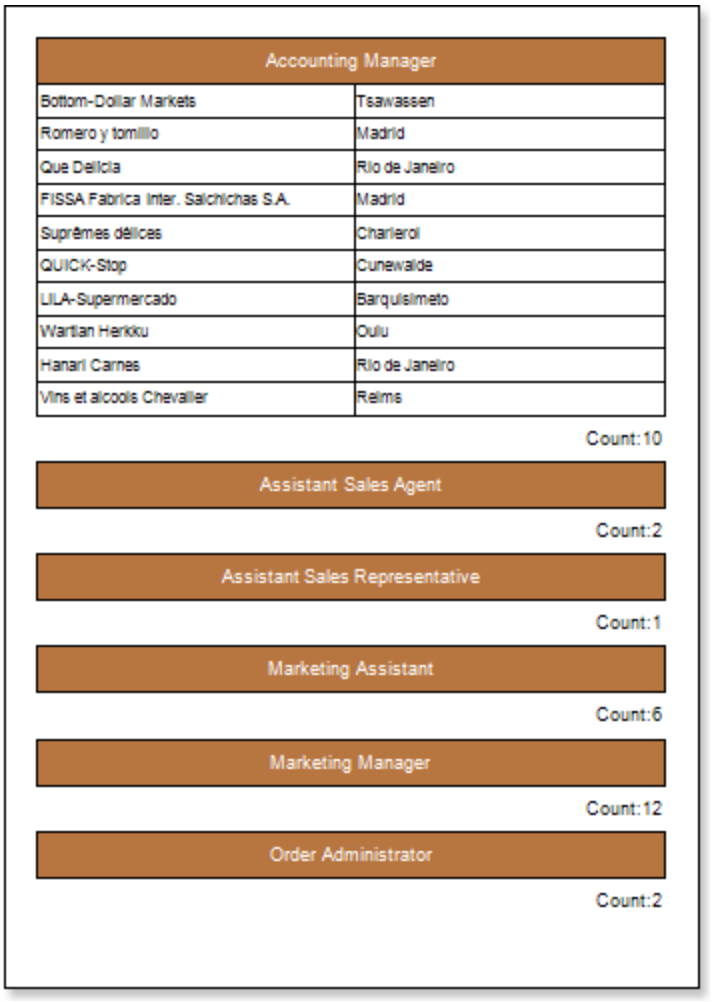
9. Click the **Preview** button or invoke the **Viewer**, pressing **F5** or clicking the **Preview** menu item. After rendering a report all references to data fields will be changed on data from specified fields.




To expand or collapse a group you should click on the **GroupHeaderBand** in the rendered report. If it is necessary for the group be collapsed together with the group summary, the **Interaction. CollapseGroupFooter** property should be set to **true**. The picture below shows the report page rendered with the collapsed report:

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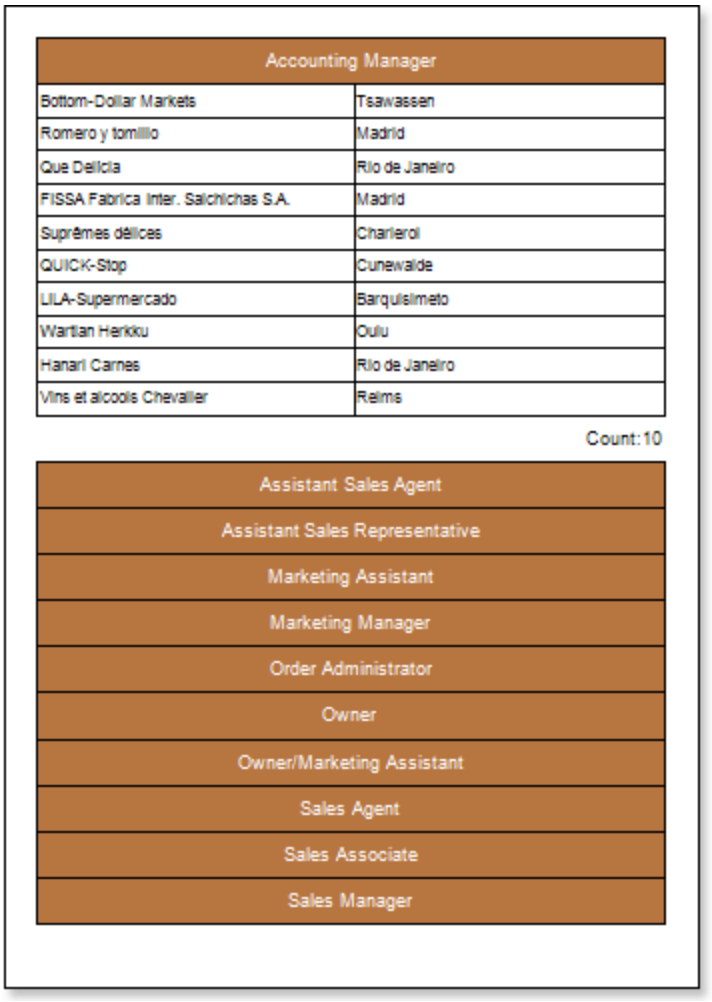

| Accounting Manager | |
|---|---|
| Bottom-Dollar Markets | Tsawassen |
| Romero y tomillo | Madrid |
| Que Delícia | Rio de Janeiro |
| FISSA Fabrica Inter. Salchichas S.A. | Madrid |
| Suprêmes délices | Charleroi |
| QUICK-Stop | Cunewalde |
| LILA-Supermercado | Barquisimeto |
| Wartian Herkku | Oulu |
| Hanari Carnes | Rio de Janeiro |
| Vins et alcools Chevalier | Reims |

Count: 10

| Assistant Sales Agent |
|---|
| Assistant Sales Representative |
| Marketing Assistant |
| Marketing Manager |
| Order Administrator |
| Owner |
| Owner/Marketing Assistant |
| Sales Agent |
| Sales Associate |
| Sales Manager |

## Adding Styles

1. Go back to the report template;
2. Select **DataBand**;
3. Change values of **Even style** and **Odd style** properties. If values of these properties are not set, then select the **Edit Styles** in the list of values of these properties and, using **Style Designer**, create a new style. The picture below shows the **Style Designer**:

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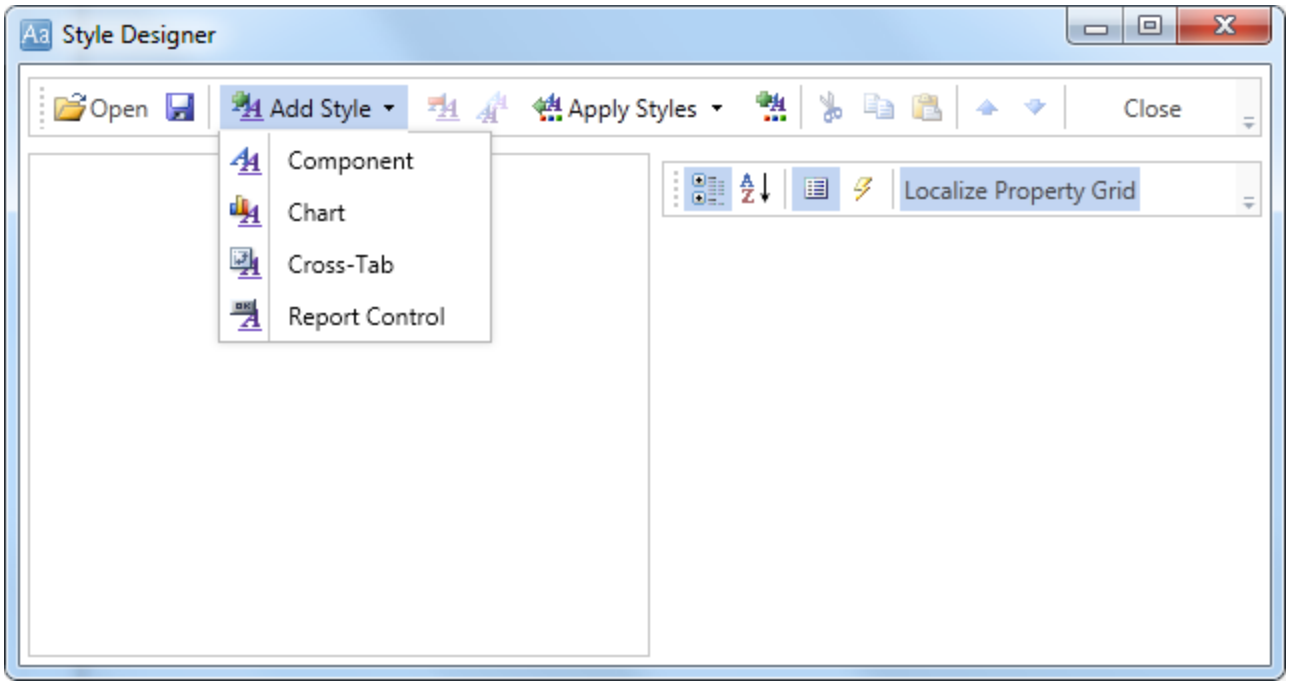


Click the **Add Style** button to start creating a style. Select **Component** from the drop down list. Set the **Brush.Color** property to change the background color of a row. The picture below shows a sample of the **Style Designer** with the list of values of the **Brush.Color** property:

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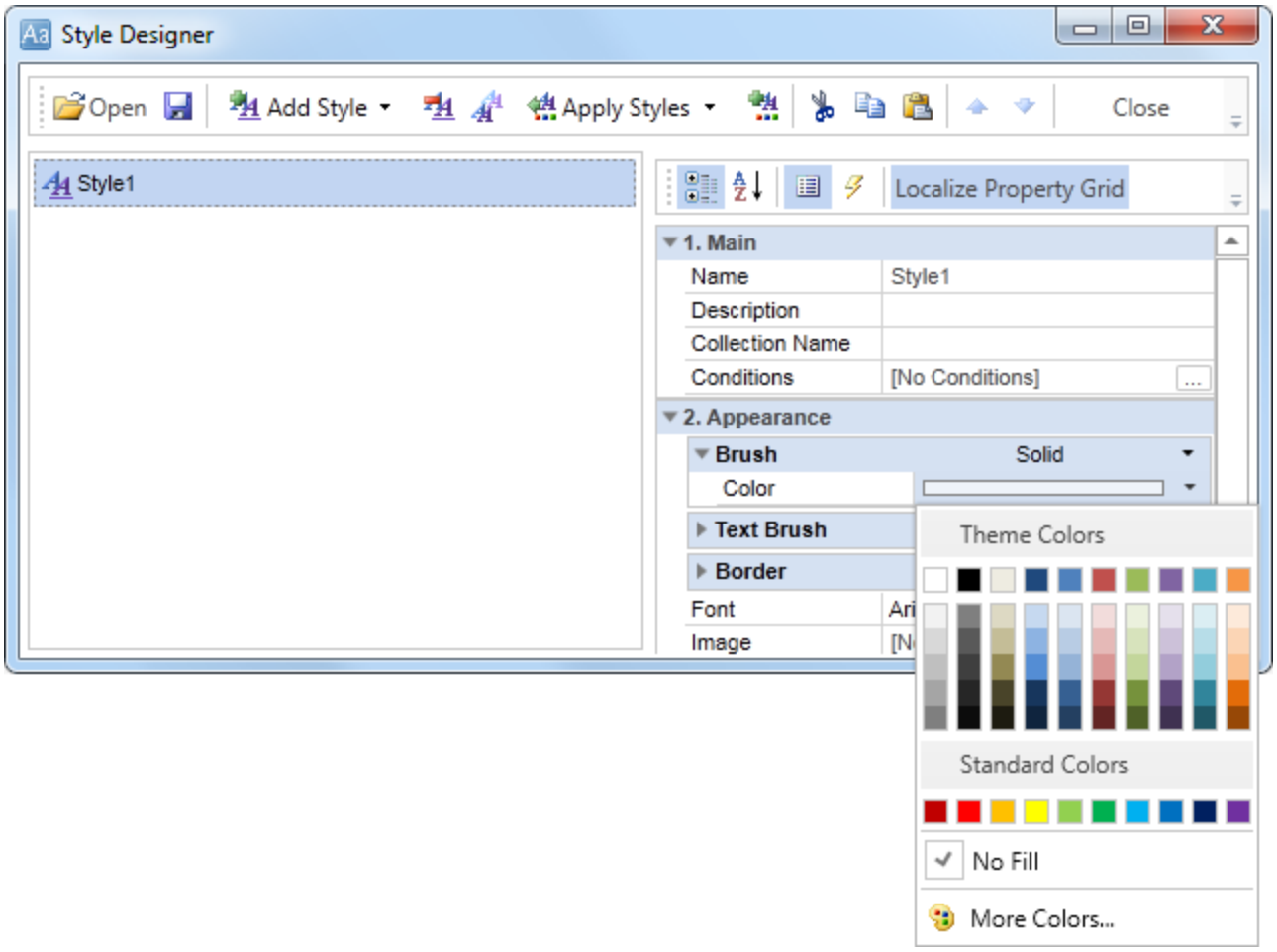


Click **Close**. Then a new value in the list of **Even style** and **Odd style** properties (a style of a list of odd and even rows) will appear.

4. To render the report, click the **Preview** button or invoke the **Viewer**, pressing **F5** or clicking the **Preview** menu item.

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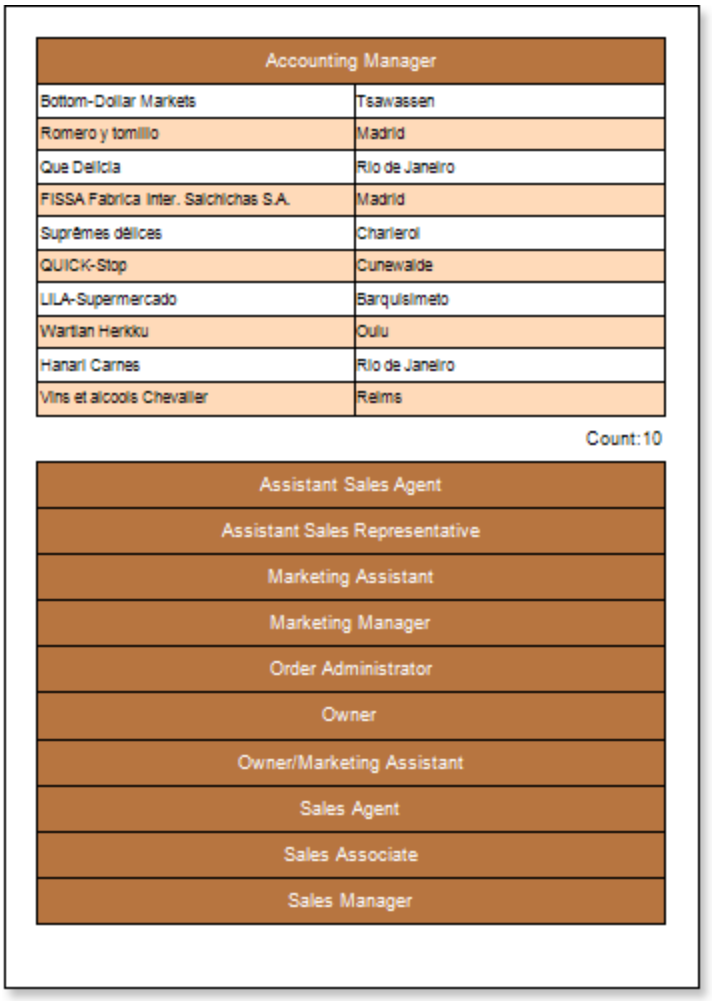

| Accounting Manager | |
|---|---|
| Bottom-Dollar Markets | Tsawassen |
| Romero y tomillo | Madrid |
| Que Delícia | Rio de Janeiro |
| FISSA Fabrica Inter. Salchichas S.A. | Madrid |
| Suprêmes délices | Charleroi |
| QUICK-Stop | Cunewalde |
| LILA-Supermercado | Barquisimeto |
| Wartian Herkku | Oulu |
| Hanari Carnes | Rio de Janeiro |
| Vins et alcools Chevalier | Reims |

Count: 10

| Assistant Sales Agent |
|---|
| Assistant Sales Representative |
| Marketing Assistant |
| Marketing Manager |
| Order Administrator |
| Owner |
| Owner/Marketing Assistant |
| Sales Agent |
| Sales Associate |
| Sales Manager |

## 4.25 Report with Dynamic Data Sorting in Preview

When designing a report, data used in a report are not always sorted in the order that is needed. In this case, the sorting can be done by means of the report generator. One way to sort the data is dynamic sorting. A report with dynamic data sorting in the preview window is an interactive report in which changing of dynamic data sorting is done by clicking the component, which dynamic sorting is enabled. Follow the steps below in order to render a report with dynamic data sorting in the preview window:

1. Run the designer;
2. Connect the data:
    2.1. Create a **New Connection**;
    2.2. Create a **New Data Source**;

3. Put a **DataBand** on a page of a report template.

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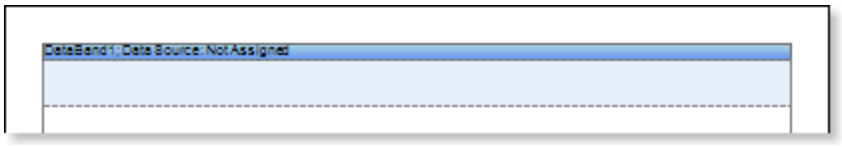
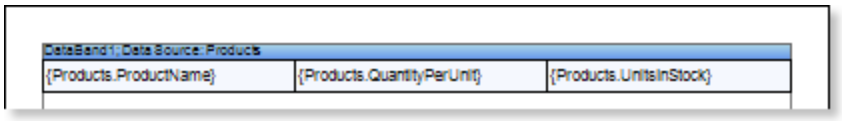



4. Edit **DataBand**:
   4.1. Align the **DataBand** by height;
   4.2. Change values of band properties. For example, set the **Can Break** property to **true**, if you wish the data band to be broken;
   4.3. Change the **DataBand** background;
   4.4. Enable **Borders** for the **DataBand**, if required;
   4.5. Change the border color.

5. Set the data source for the **DataBand** using the **Data Source** property:

6. Put text components with expressions in the **DataBand**. Where expression is a reference to the data field. For example, put three text components with expressions: **{Products.ProductName}**, **{Products.QuantityPerUnit}**, and **{Products.UnitsInStock}**;

7. Edit **Text** and **TextBox** component:
   7.1. Drag and drop the text component in the **DataBand**;
   7.2. Change parameters of the text font: size, type, color;
   7.3. Align the text component by width and height;
   7.4. Change the background of the text component;
   7.5. Align text in the text component;
   7.6. Change the value of properties of the text component. For example, set the **Word Wrap** property to **true**, if you need a text to be wrapped;
   7.7. Enable **Borders** for the text component, if required.
   7.8. Change the border color.




8. Click the **Preview** button or invoke the **Viewer**, pressing **F5** or clicking the **Preview** menu item. After rendering all references to data fields will be changed on data form specified fields. Data will be output in consecutive order from the database that was defined for this report. The amount of copies of the **DataBand** in the rendered report will be the same as the amount of data rows in the database.

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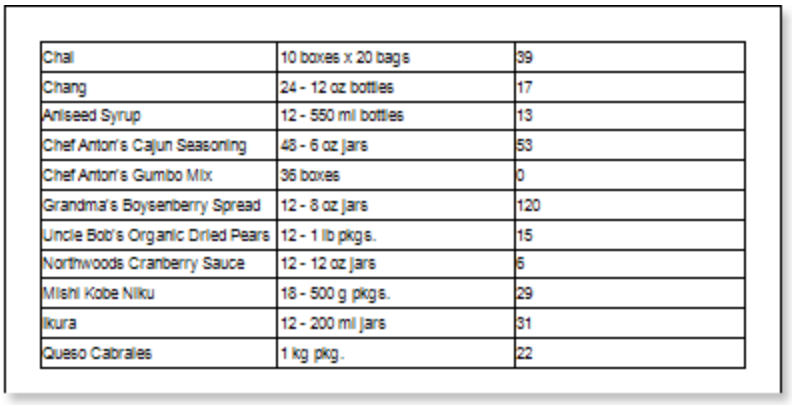
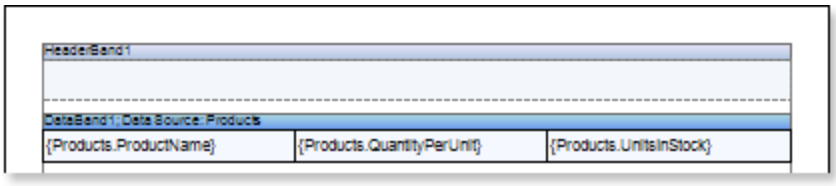
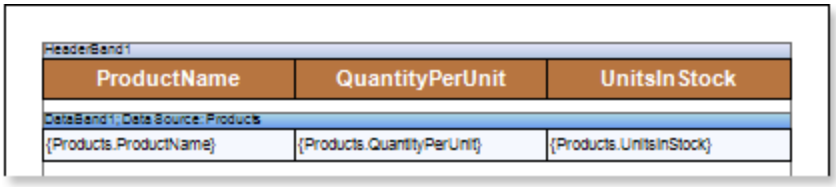


| | | |
|---|---|---|
| Chai | 10 boxes x 20 bags | 39 |
| Chang | 24 - 12 oz bottles | 17 |
| Aniseed Syrup | 12 - 550 ml bottles | 13 |
| Chef Anton's Cajun Seasoning | 48 - 6 oz jars | 53 |
| Chef Anton's Gumbo Mix | 36 boxes | 0 |
| Grandma's Boysenberry Spread | 12 - 8 oz jars | 120 |
| Uncle Bob's Organic Dried Pears | 12 - 1 lb pkgs. | 15 |
| Northwoods Cranberry Sauce | 12 - 12 oz jars | 6 |
| Mishi Kobe Niku | 18 - 500 g pkgs. | 29 |
| Ikura | 12 - 200 ml jars | 31 |
| Queso Cabrales | 1 kg pkg. | 22 |

9.Go back to the report template;
10. If needed, add other bands to the report template, for example, **ReportTitleBand** and **ReportSummaryBand**;
11. Edit these bands:
    11.1. Align them by height;
    11.2. Change values of properties, if required;
    11.3. Change the background of bands;
    11.4. Enable **Borders**, if required;
    11.5. Set the border color.




12. Put text components with expressions in the these bands. The expression in the text component is a title in the **ReportTitleBand**, and a summary in the **ReportSummaryBand**.
13. Edit text and text components:
    13.1. Drag and drop the text component in the band;
    13.2. Change font options: size, type, color;
    13.3. Align text component by height and width;
    13.4. Change the background of the text component;
    13.5. Align text in the text component;
    13.6. Change values of text component properties, if required;
    13.7. Enable **Borders** of the text component, if required;
    13.8. Set the border color.




14. Click the **Preview** button or invoke the **Viewer**, pressing **F5** or clicking the **Preview** menu item. After

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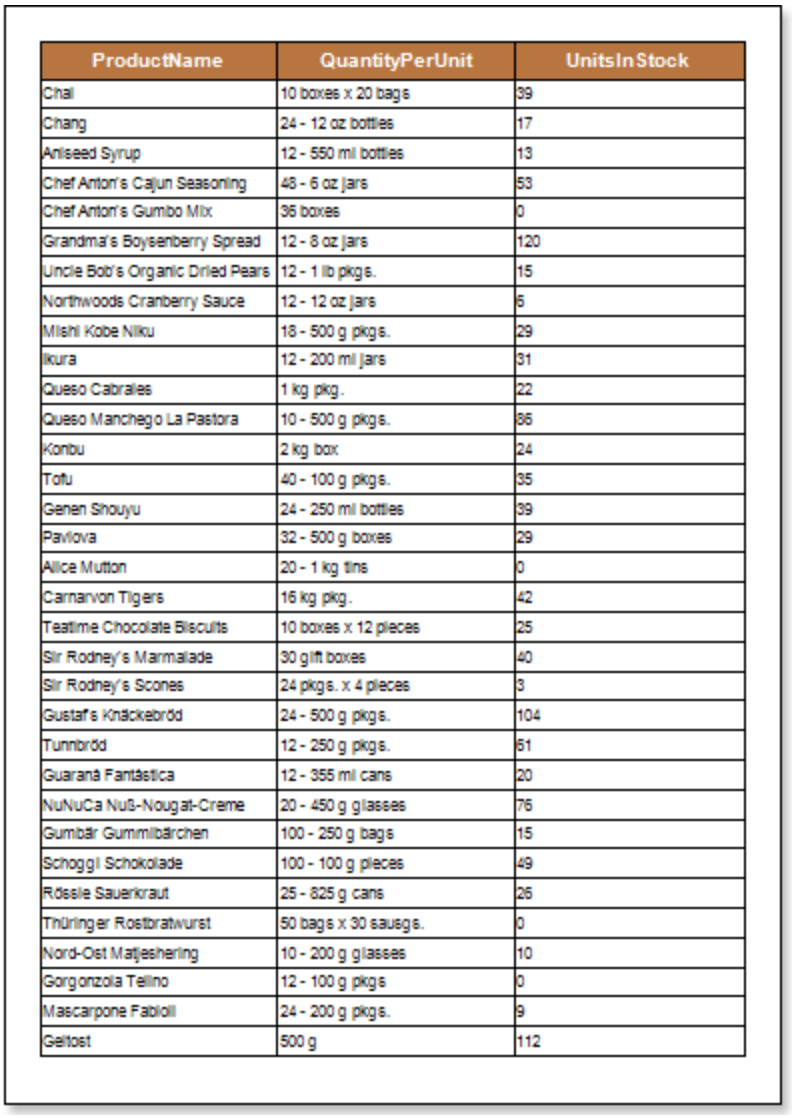
rendering all references to data fields will be changed on data form specified fields. Data will be output in consecutive order from the database that was defined for this report. The amount of copies of the **DataBand** in the rendered report will be the same as the amount of data rows in the database.



| ProductName | QuantityPerUnit | UnitsInStock |
|---|---|---|
| Chai | 10 boxes x 20 bags | 39 |
| Chang | 24 - 12 oz bottles | 17 |
| Aniseed Syrup | 12 - 550 ml bottles | 13 |
| Chef Anton's Cajun Seasoning | 48 - 6 oz jars | 53 |
| Chef Anton's Gumbo Mix | 36 boxes | 0 |
| Grandma's Boysenberry Spread | 12 - 8 oz jars | 120 |
| Uncle Bob's Organic Dried Pears | 12 - 1 lb pkgs. | 15 |
| Northwoods Cranberry Sauce | 12 - 12 oz jars | 6 |
| Mishi Kobe Niku | 18 - 500 g pkgs. | 29 |
| Ikura | 12 - 200 ml jars | 31 |
| Queso Cabrales | 1 kg pkg. | 22 |
| Queso Manchego La Pastora | 10 - 500 g pkgs. | 86 |
| Konbu | 2 kg box | 24 |
| Tofu | 40 - 100 g pkgs. | 35 |
| Genen Shouyu | 24 - 250 ml bottles | 39 |
| Pavlova | 32 - 500 g boxes | 29 |
| Alice Mutton | 20 - 1 kg tins | 0 |
| Carnarvon Tigers | 16 kg pkg. | 42 |
| Teatime Chocolate Biscuits | 10 boxes x 12 pieces | 25 |
| Sir Rodney's Marmalade | 30 gift boxes | 40 |
| Sir Rodney's Scones | 24 pkgs. x 4 pieces | 3 |
| Gustaf's Knäckebröd | 24 - 500 g pkgs. | 104 |
| Tunnbröd | 12 - 250 g pkgs. | 61 |
| Guaraná Fantástica | 12 - 355 ml cans | 20 |
| NuNuCa Nuß-Nougat-Creme | 20 - 450 g glasses | 76 |
| Gumbär Gummibärchen | 100 - 250 g bags | 15 |
| Schoggi Schokolade | 100 - 100 g pieces | 49 |
| Rössle Sauerkraut | 25 - 825 g cans | 26 |
| Thüringer Rostbratwurst | 50 bags x 30 sausgs. | 0 |
| Nord-Ost Matjeshering | 10 - 200 g glasses | 10 |
| Gorgonzola Telino | 12 - 100 g pkgs | 0 |
| Mascarpone Fabioli | 24 - 200 g pkgs. | 9 |
| Geitost | 500 g | 112 |

15. Go back to the report template;
16. Select a text component or any other component, on what one clicks and in the rendered report sorting will be done. In this case, select the **TextBox4** component in the **HeaderBand** with the **ProductName** text;
17. Change the value of the **Interaction.Sorting Column** property. The value of this property will be a column of the data source by what sorting will be done. Set the **Interaction.Sorting Column** property to **DataBand1.ProductName**;
18. Click the **Preview** button or invoke the **Viewer**, pressing **F5** or clicking the **Preview** menu item. After rendering all references to data fields will be changed on data form specified fields. Data will be output in consecutive order from the database that was defined for this report. The amount of copies of the **DataBand** in the rendered report will be the same as the amount of data rows in the database.

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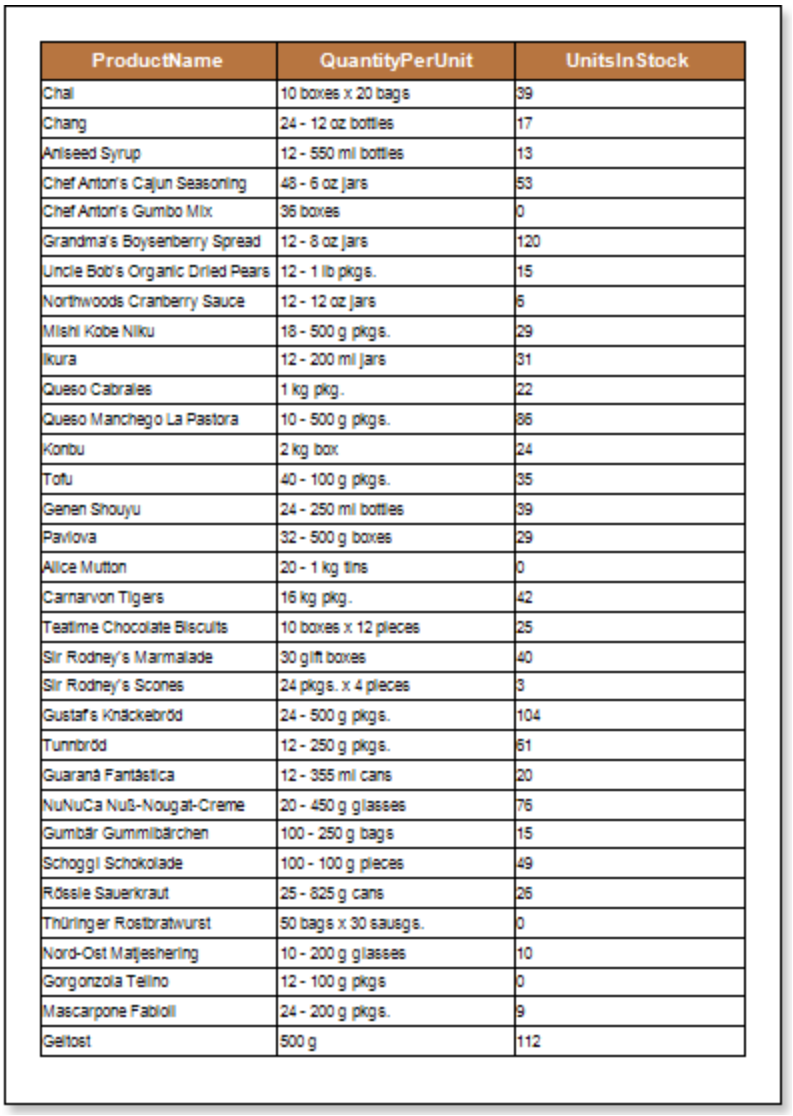

| ProductName | QuantityPerUnit | UnitsInStock |
|---|---|---|
| Chai | 10 boxes x 20 bags | 39 |
| Chang | 24 - 12 oz bottles | 17 |
| Aniseed Syrup | 12 - 550 ml bottles | 13 |
| Chef Anton's Cajun Seasoning | 48 - 6 oz jars | 53 |
| Chef Anton's Gumbo Mix | 36 boxes | 0 |
| Grandma's Boysenberry Spread | 12 - 8 oz jars | 120 |
| Uncle Bob's Organic Dried Pears | 12 - 1 lb pkgs. | 15 |
| Northwoods Cranberry Sauce | 12 - 12 oz jars | 6 |
| Mishi Kobe Niku | 18 - 500 g pkgs. | 29 |
| Ikura | 12 - 200 ml jars | 31 |
| Queso Cabrales | 1 kg pkg. | 22 |
| Queso Manchego La Pastora | 10 - 500 g pkgs. | 86 |
| Konbu | 2 kg box | 24 |
| Tofu | 40 - 100 g pkgs. | 35 |
| Genen Shouyu | 24 - 250 ml bottles | 39 |
| Pavlova | 32 - 500 g boxes | 29 |
| Alice Mutton | 20 - 1 kg tins | 0 |
| Carnarvon Tigers | 16 kg pkg. | 42 |
| Teatime Chocolate Biscuits | 10 boxes x 12 pieces | 25 |
| Sir Rodney's Marmalade | 30 gift boxes | 40 |
| Sir Rodney's Scones | 24 pkgs. x 4 pieces | 3 |
| Gustaf's Knäckebröd | 24 - 500 g pkgs. | 104 |
| Tunnbröd | 12 - 250 g pkgs. | 61 |
| Guaraná Fantástica | 12 - 355 ml cans | 20 |
| NuNuCa Nuß-Nougat-Creme | 20 - 450 g glasses | 76 |
| Gumbär Gummibärchen | 100 - 250 g bags | 15 |
| Schoggi Schokolade | 100 - 100 g pieces | 49 |
| Rössle Sauerkraut | 25 - 825 g cans | 26 |
| Thüringer Rostbratwurst | 50 bags x 30 sausgs. | 0 |
| Nord-Ost Matjeshering | 10 - 200 g glasses | 10 |
| Gorgonzola Telino | 12 - 100 g pkgs | 0 |
| Mascarpone Fabioli | 24 - 200 g pkgs. | 9 |
| Geitost | 500 g | 112 |

19. To enable sorting of data by the specified data column, you should click a report component which the **Interaction.Sorting Column** property was set earlier. In our example, you should click the **TextBox4**. After clicking the text component, data will be sorted in **Ascending** direction. To change the sorting direction from **Ascending** to **Descending**, you need to click the text component again, i.e. each time after clicking the text component sorting direction will be changed. The picture below shows the first page of the report rendered with different sorting directions:

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Ascending

| ProductName | QuantityPerUnit | UnitsInStock |
|---|---|---|
| Alice Mutton | 20 - 1 kg tins | 0 |
| Aniseed Syrup | 12 - 550 ml bottles | 13 |
| Boston Crab Meat | 24 - 4 oz tins | 123 |
| Camembert Pierrot | 15 - 300 g rounds | 19 |
| Carnarvon Tigers | 16 kg pkg. | 42 |
| Chai | 10 boxes x 20 bags | 39 |
| Chang | 24 - 12 oz bottles | 17 |
| Chartreuse verte | 750 cc per bottle | 69 |
| Chef Anton's Cajun Seasoning | 48 - 6 oz jars | 53 |
| Chef Anton's Gumbo Mix | 36 boxes | 0 |
| Chocolade | 10 pkgs. | 15 |
| Côte de Blaye | 12 - 75 cl bottles | 17 |
| Escargots de Bourgogne | 24 pieces | 62 |
| Filo Mix | 16 - 2 kg boxes | 38 |
| Flotemysost | 10 - 500 g pkgs. | 26 |
| Geitost | 500 g | 112 |
| Genen Shouyu | 24 - 250 ml bottles | 39 |
| Gnocchi di nonna Alice | 24 - 250 g pkgs. | 21 |
| Gorgonzola Telino | 12 - 100 g pkgs | 0 |
| Grandma's Boysenberry Spread | 12 - 8 oz jars | 120 |
| Gravad lax | 12 - 500 g pkgs. | 11 |
| Guaraná Fantástica | 12 - 355 ml cans | 20 |
| Gudbrandsdalsost | 10 kg pkg. | 26 |
| Gula Malacca | 20 - 2 kg bags | 27 |
| Gumbär Gummibärchen | 100 - 250 g bags | 15 |
| Gustaf's Knäckebröd | 24 - 500 g pkgs. | 104 |
| Ikura | 12 - 200 ml jars | 31 |
| Inlagd Sill | 24 - 250 g  jars | 112 |
| Ipoh Coffee | 16 - 500 g tins | 17 |
| Jack's New England Clam Chowder | 12 - 12 oz cans | 85 |
| Konbu | 2 kg box | 24 |
| Lakkalikööri | 500 ml | 57 |
| Laughing Lumberjack Lager | 24 - 12 oz bottles | 52 |

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Descending

| ProductName | QuantityPerUnit | UnitsInStock |
|---|---|---|
| Zaanse koeken | 10 - 4 oz boxes | 36 |
| Wimmers gute Semmelknödel | 20 bags x 4 pieces | 22 |
| Vegie-spread | 15 - 625 g jars | 24 |
| Valkoinen suklaa | 12 - 100 g bars | 65 |
| Uncle Bob's Organic Dried Pears | 12 - 1 lb pkgs. | 15 |
| Tunnbröd | 12 - 250 g pkgs. | 61 |
| Tourtière | 16 pies | 21 |
| Tofu | 40 - 100 g pkgs. | 35 |
| Thüringer Rostbratwurst | 50 bags x 30 sausgs. | 0 |
| Teatime Chocolate Biscuits | 10 boxes x 12 pieces | 25 |
| Tarte au sucre | 48 pies | 17 |
| Steeleye Stout | 24 - 12 oz bottles | 20 |
| Spegesild | 4 - 450 g glasses | 95 |
| Sirop d'érable | 24 - 500 ml bottles | 113 |
| Sir Rodney's Scones | 24 pkgs. x 4 pieces | 3 |
| Sir Rodney's Marmalade | 30 gift boxes | 40 |
| Singaporean Hokkien Fried Mee | 32 - 1 kg pkgs. | 26 |
| Scottish Longbreads | 10 boxes x 8 pieces | 6 |
| Schoggi Schokolade | 100 - 100 g pieces | 49 |
| Sasquatch Ale | 24 - 12 oz bottles | 111 |
| Rössle Sauerkraut | 25 - 825 g cans | 26 |
| Rogede sild | 1k pkg. | 5 |
| Röd Kaviar | 24 - 150 g jars | 101 |
| Rhönbräu Klosterbier | 24 - 0.5 l bottles | 125 |
| Ravioli Angelo | 24 - 250 g pkgs. | 36 |
| Raclette Courdavault | 5 kg pkg. | 79 |
| Queso Manchego La Pastora | 10 - 500 g pkgs. | 86 |
| Queso Cabrales | 1 kg pkg. | 22 |
| Perth Pasties | 48 pieces | 0 |
| Pavlova | 32 - 500 g boxes | 29 |
| Pâté chinois | 24 boxes x 2 pies | 115 |
| Outback Lager | 24 - 355 ml bottles | 15 |
| Original Frankfurter grüne Soße | 12 boxes | 32 |

Sorting direction displays the "arrow" icon.

## Adding Styles

1. Go back to the report template;
2. Select **DataBand**;
3. Change values of **Even style** and **Odd style** properties. If values of these properties are not set, then select the **Edit Styles** in the list of values of these properties and, using **Style Designer**, create a new style. The picture below shows the **Style Designer**:

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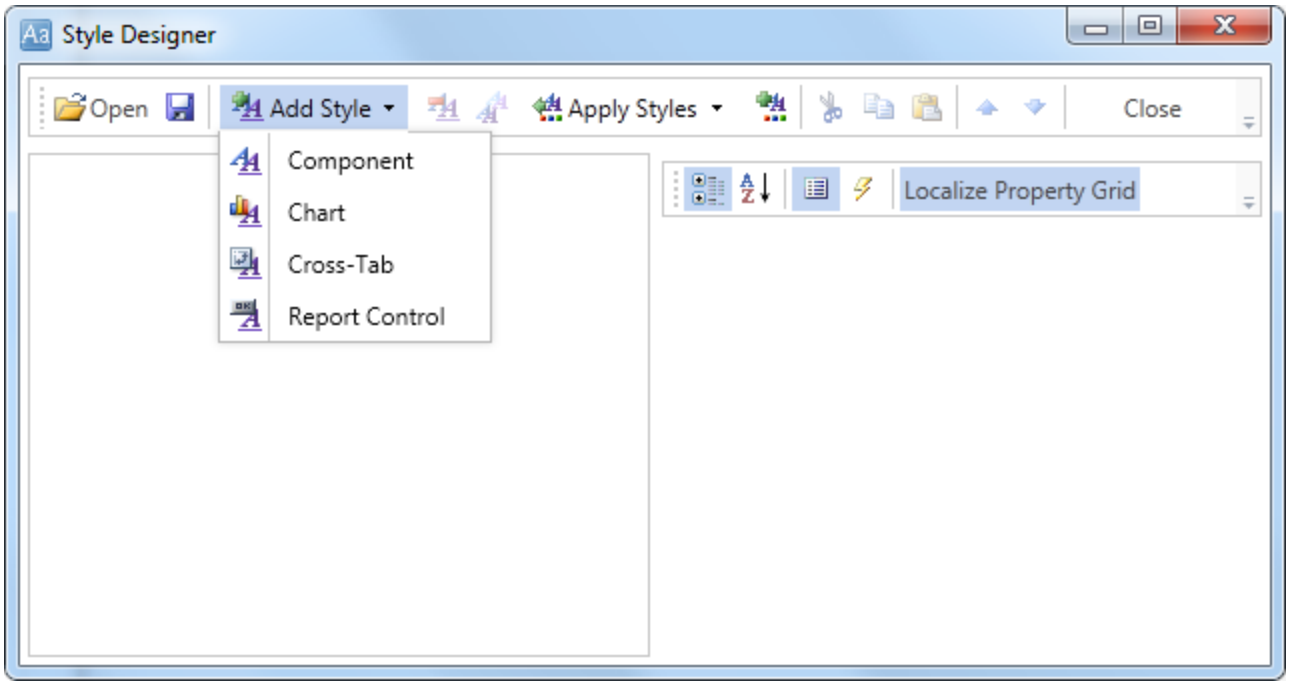


Click the **Add Style** button to start creating a style. Select **Component** from the drop down list. Set the **Brush.Color** property to change the background color of a row. The picture below shows a sample of the **Style Designer** with the list of values of the **Brush.Color** property:

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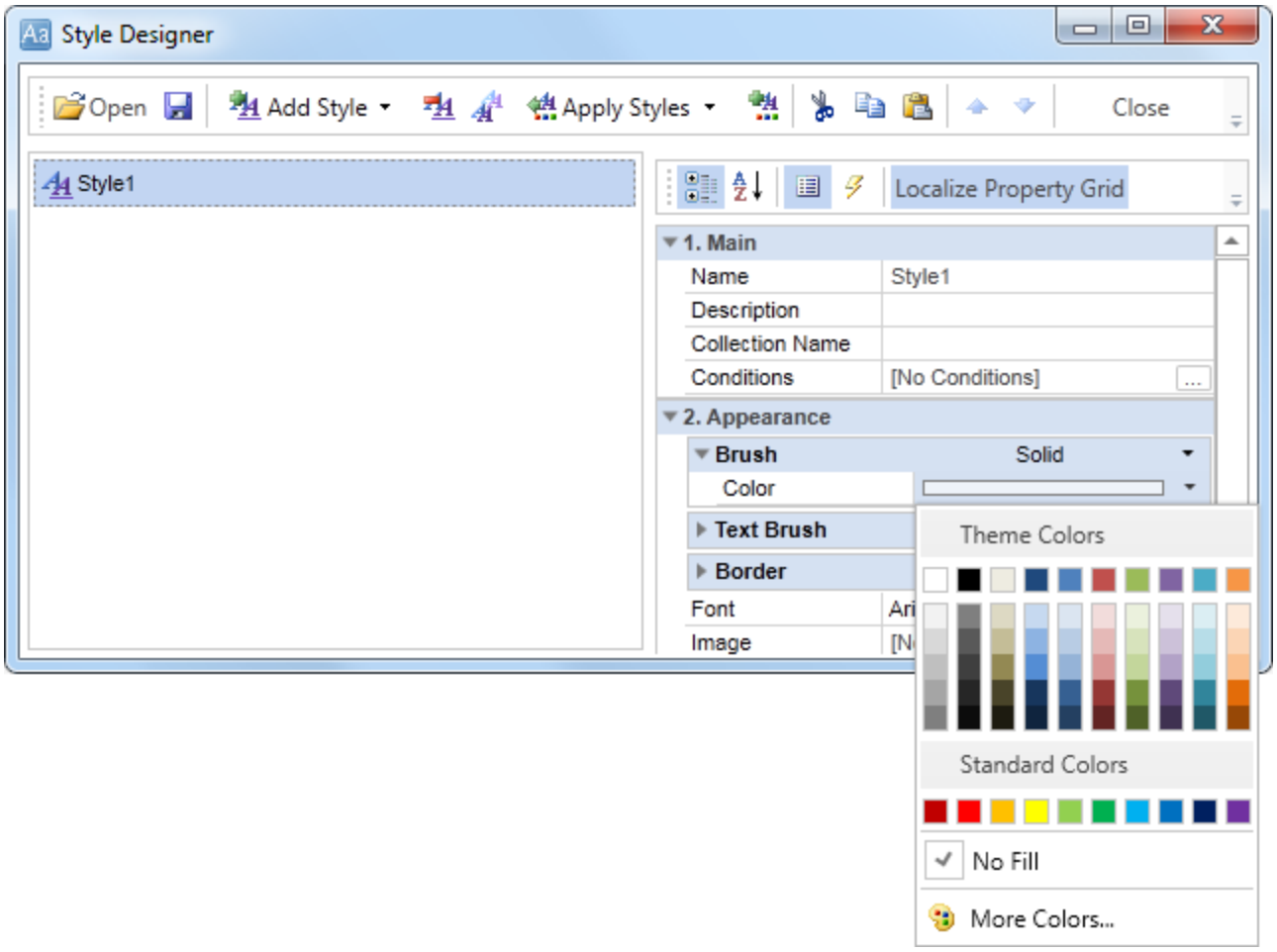


Click **Close**. Then a new value in the list of **Even style** and **Odd style** properties (a style of a list of odd and even rows) will appear.

4. To render the report, click the **Preview** button or invoke the **Viewer**, pressing **F5** or clicking the **Preview** menu item.

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Ascending

| ProductName | QuantityPerUnit | UnitsInStock |
|---|---|---|
| Alice Mutton | 20 - 1 kg tins | 0 |
| Aniseed Syrup | 12 - 550 ml bottles | 13 |
| Boston Crab Meat | 24 - 4 oz tins | 123 |
| Camembert Pierrot | 15 - 300 g rounds | 19 |
| Carnarvon Tigers | 16 kg pkg. | 42 |
| Chai | 10 boxes x 20 bags | 39 |
| Chang | 24 - 12 oz bottles | 17 |
| Chartreuse verte | 750 cc per bottle | 69 |
| Chef Anton's Cajun Seasoning | 48 - 6 oz jars | 53 |
| Chef Anton's Gumbo Mix | 36 boxes | 0 |
| Chocolade | 10 pkgs. | 15 |
| Côte de Blaye | 12 - 75 cl bottles | 17 |
| Escargots de Bourgogne | 24 pieces | 62 |
| Filo Mix | 16 - 2 kg boxes | 38 |
| Flotemysost | 10 - 500 g pkgs. | 26 |
| Geitost | 500 g | 112 |
| Genen Shouyu | 24 - 250 ml bottles | 39 |
| Gnocchi di nonna Alice | 24 - 250 g pkgs. | 21 |
| Gorgonzola Telino | 12 - 100 g pkgs | 0 |
| Grandma's Boysenberry Spread | 12 - 8 oz jars | 120 |
| Gravad lax | 12 - 500 g pkgs. | 11 |
| Guaraná Fantástica | 12 - 355 ml cans | 20 |
| Gudbrandsdalsost | 10 kg pkg. | 26 |
| Gula Malacca | 20 - 2 kg bags | 27 |
| Gumbär Gummibärchen | 100 - 250 g bags | 15 |
| Gustaf's Knäckebröd | 24 - 500 g pkgs. | 104 |
| Ikura | 12 - 200 ml jars | 31 |
| Inlagd Sill | 24 - 250 g  jars | 112 |
| Ipoh Coffee | 16 - 500 g tins | 17 |
| Jack's New England Clam Chowder | 12 - 12 oz cans | 85 |
| Konbu | 2 kg box | 24 |
| Lakkalikööri | 500 ml | 57 |
| Laughing Lumberjack Lager | 24 - 12 oz bottles | 52 |

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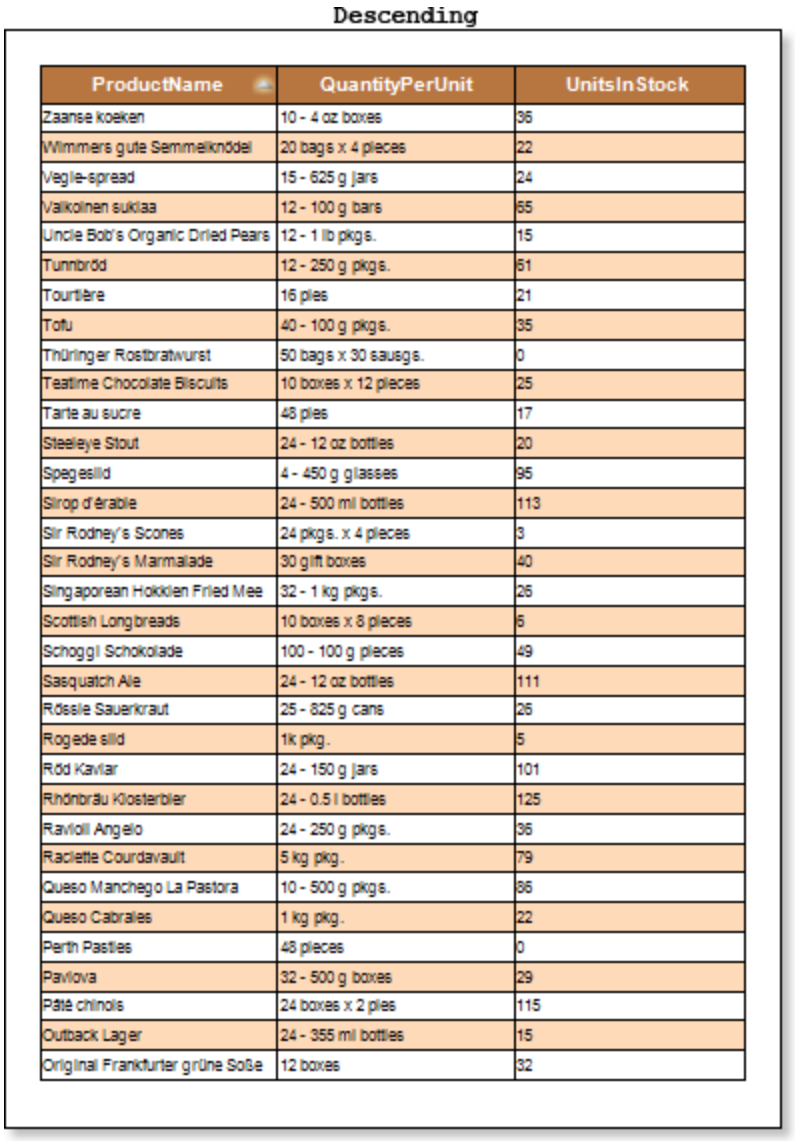

Descending

| ProductName | QuantityPerUnit | UnitsInStock |
|---|---|---|
| Zaanse koeken | 10 - 4 oz boxes | 36 |
| Wimmers gute Semmelknödel | 20 bags x 4 pieces | 22 |
| Vegie-spread | 15 - 625 g jars | 24 |
| Valkoinen suklaa | 12 - 100 g bars | 65 |
| Uncle Bob's Organic Dried Pears | 12 - 1 lb pkgs. | 15 |
| Tunnbröd | 12 - 250 g pkgs. | 61 |
| Tourtière | 16 pies | 21 |
| Tofu | 40 - 100 g pkgs. | 35 |
| Thüringer Rostbratwurst | 50 bags x 30 sausgs. | 0 |
| Teatime Chocolate Biscuits | 10 boxes x 12 pieces | 25 |
| Tarte au sucre | 48 pies | 17 |
| Steeleye Stout | 24 - 12 oz bottles | 20 |
| Spegesild | 4 - 450 g glasses | 95 |
| Sirop d'érable | 24 - 500 ml bottles | 113 |
| Sir Rodney's Scones | 24 pkgs. x 4 pieces | 3 |
| Sir Rodney's Marmalade | 30 gift boxes | 40 |
| Singaporean Hokkien Fried Mee | 32 - 1 kg pkgs. | 26 |
| Scottish Longbreads | 10 boxes x 8 pieces | 6 |
| Schoggi Schokolade | 100 - 100 g pieces | 49 |
| Sasquatch Ale | 24 - 12 oz bottles | 111 |
| Rössle Sauerkraut | 25 - 825 g cans | 26 |
| Rogede sild | 1k pkg. | 5 |
| Röd Kaviar | 24 - 150 g jars | 101 |
| Rhönbräu Klosterbier | 24 - 0.5 l bottles | 125 |
| Ravioli Angelo | 24 - 250 g pkgs. | 36 |
| Raclette Courdavault | 5 kg pkg. | 79 |
| Queso Manchego La Pastora | 10 - 500 g pkgs. | 86 |
| Queso Cabrales | 1 kg pkg. | 22 |
| Perth Pasties | 48 pieces | 0 |
| Pavlova | 32 - 500 g boxes | 29 |
| Pâté chinois | 24 boxes x 2 pies | 115 |
| Outback Lager | 24 - 355 ml bottles | 15 |
| Original Frankfurter grüne Soße | 12 boxes | 32 |

## 4.26 Report With Dynamic Collapsing in Preview

The report with dynamic collapsing is an interactive report in what items can collapse/expand its contents by clicking the title of the block. In order to create a report with dynamic folding in the preview window, you should do the following:

Run the designer;
Connect the data:
2.1. Create a **New Connection**;
2.2. Create a **New Data Source**;

3. Create a report or open a previously designed one. For example, open a report with grouping, which was reviewed in the chapter "Report from the groups." The picture below shows a report

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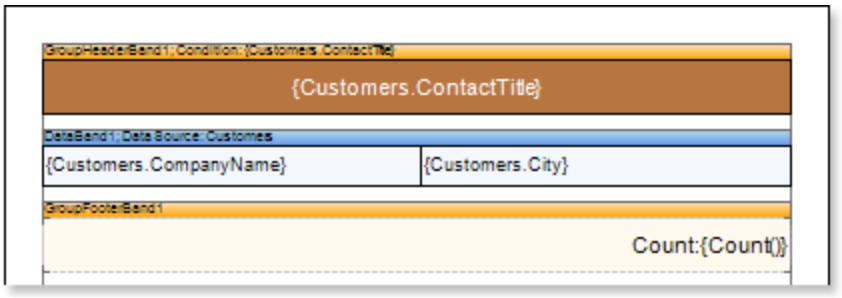
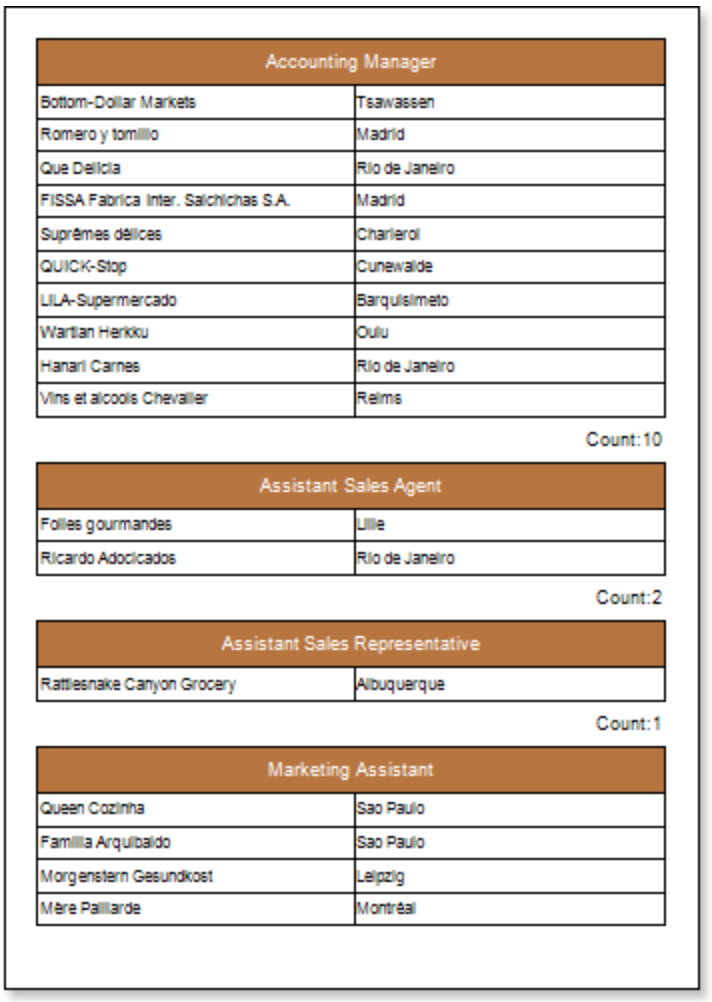
template with groups:




4. Render your report. Click on the **Preview** tab or invoke the report viewer pressing F5 key or clicking the Preview in the menu. After rendering a report, all references to the data field will be replaced with data from these fields. The picture below shows a report page with the grouping:



| Accounting Manager | |
|---|---|
| Bottom-Dollar Markets | Tsawassen |
| Romero y tomillo | Madrid |
| Que Delícia | Rio de Janeiro |
| FISSA Fabrica Inter. Salchichas S.A. | Madrid |
| Suprêmes délices | Charleroi |
| QUICK-Stop | Cunewalde |
| LILA-Supermercado | Barquisimeto |
| Wartian Herkku | Oulu |
| Hanari Carnes | Rio de Janeiro |
| Vins et alcools Chevalier | Reims |

Count:10

| Assistant Sales Agent | |
|---|---|
| Folies gourmandes | Lille |
| Ricardo Adocicados | Rio de Janeiro |

Count:2

| Assistant Sales Representative | |
|---|---|
| Rattlesnake Canyon Grocery | Albuquerque |

Count:1

| Marketing Assistant | |
|---|---|
| Queen Cozinha | Sao Paulo |
| Familia Arquibaldo | Sao Paulo |
| Morgenstern Gesundkost | Leipzig |
| Mère Paillarde | Montréal |

5. Go back to the report template;
6. Select the GroupHeaderBand;
7. Set the **Interaction.Collapsing Enabled** property to **true**:

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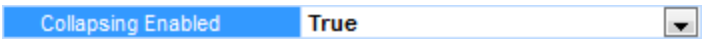
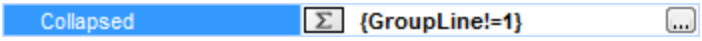
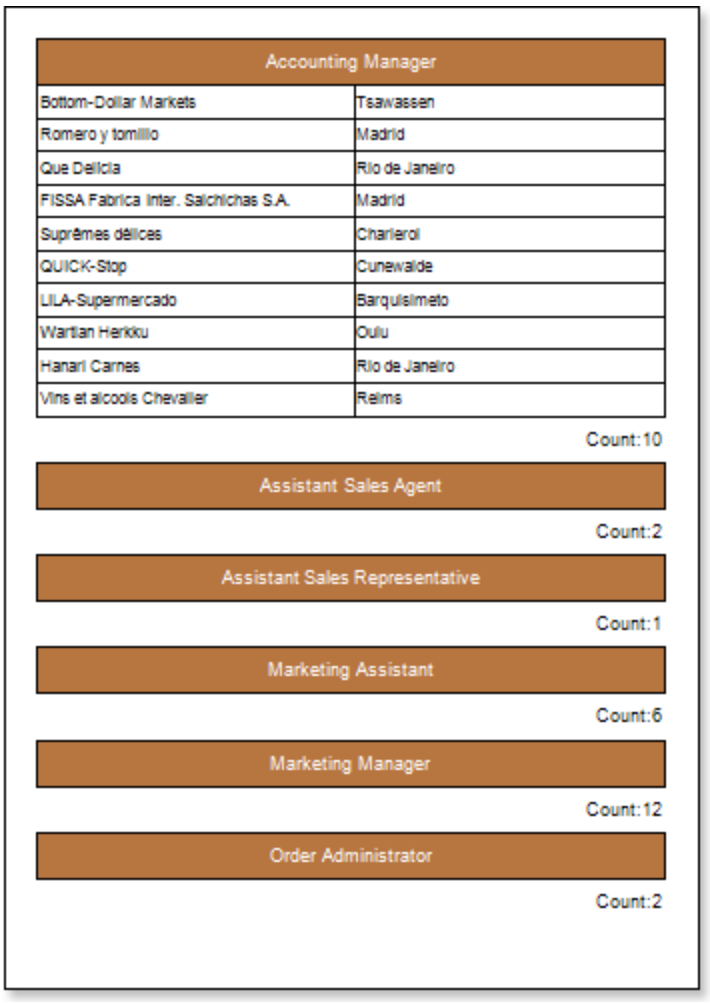



8. Change the value of the **Interaction.Collapsed**. In this case, set this property to **{GroupLine!=1}**, i.e. all the groups except the first one will be collapsed:




9. Render the report. Click on the **Preview** tab or invoke the report viewer pressing F5 key or clicking the Preview in the menu. After rendering a report, all references to the data field will be replaced with data from these fields. The picture below shows the rendered page of the report:




In order to expand or collapse the group, select the **GroupHeaderBand** in the rendered report. If you want to collapse the group together with the the group footer you should set the **Interaction.Collapse Group Footer** property set to **true**. The picture below shows a rendered report page with the collapsed items:

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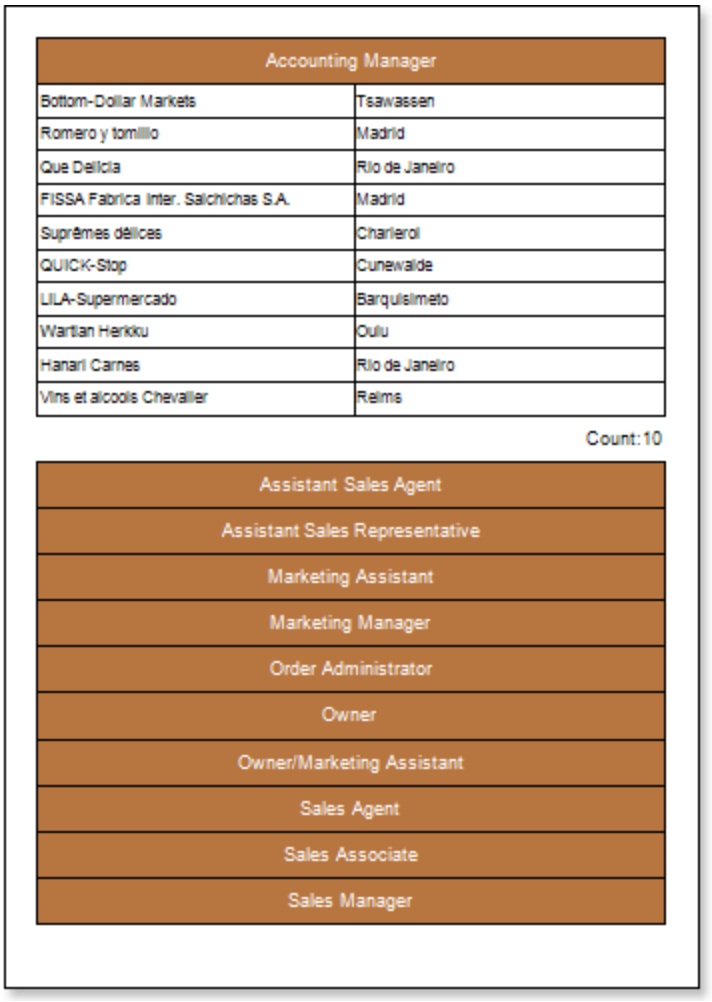

| Accounting Manager | |
|---|---|
| Bottom-Dollar Markets | Tsawassen |
| Romero y tomillo | Madrid |
| Que Delícia | Rio de Janeiro |
| FISSA Fabrica Inter. Salchichas S.A. | Madrid |
| Suprêmes délices | Charleroi |
| QUICK-Stop | Cunewalde |
| LILA-Supermercado | Barquisimeto |
| Wartian Herkku | Oulu |
| Hanari Carnes | Rio de Janeiro |
| Vins et alcools Chevalier | Reims |

Count: 10

| Assistant Sales Agent |
|---|
| Assistant Sales Representative |
| Marketing Assistant |
| Marketing Manager |
| Order Administrator |
| Owner |
| Owner/Marketing Assistant |
| Sales Agent |
| Sales Associate |
| Sales Manager |

## Adding Styles

1. Go back to the report template;
2. Select **DataBand**;
3. Change values of **Even style** and **Odd style** properties. If values of these properties are not set, then select the **Edit Styles** in the list of values of these properties and, using **Style Designer**, create a new style. The picture below shows the **Style Designer**:

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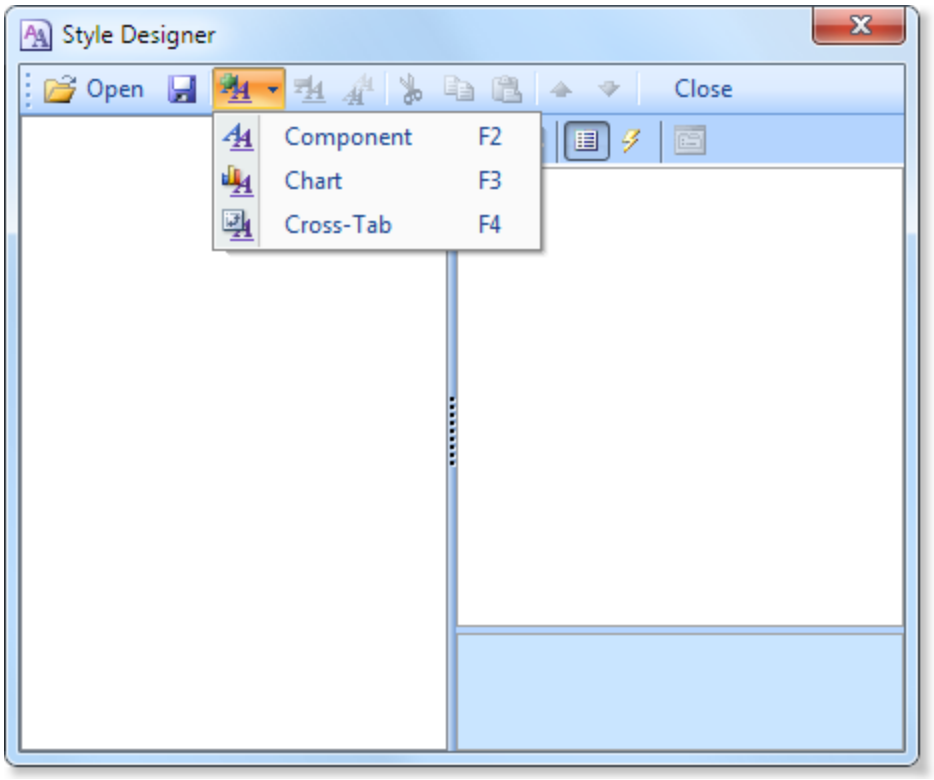


Click the **Add Style** button to start creating a style. Select **Component** from the drop down list. Set the **Brush.Color** property to change the background color of a row. The picture below shows a sample of the **Style Designer** with the list of values of the **Brush.Color** property:

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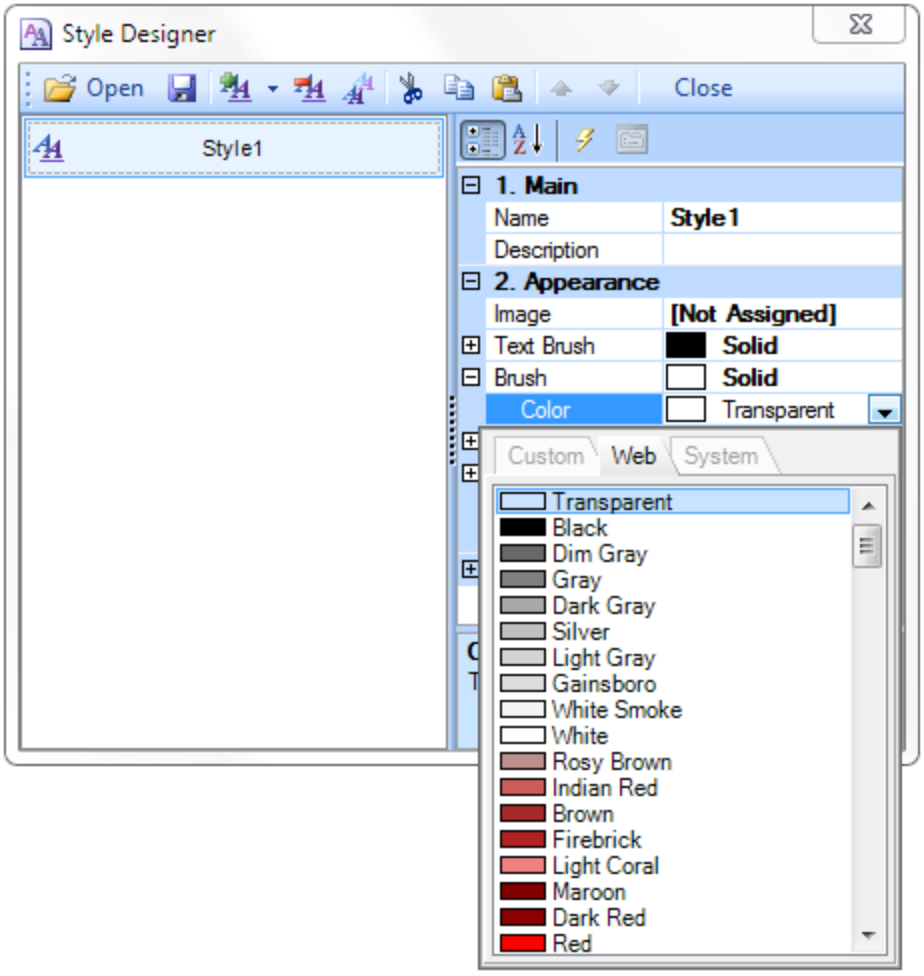


Click **Close**. Then a new value in the list of **Even style** and **Odd style** properties (a style of a list of odd and even rows) will appear.

4. To render the report, click the **Preview** button or invoke the **Viewer**, pressing **F5** or clicking the **Preview** menu item.

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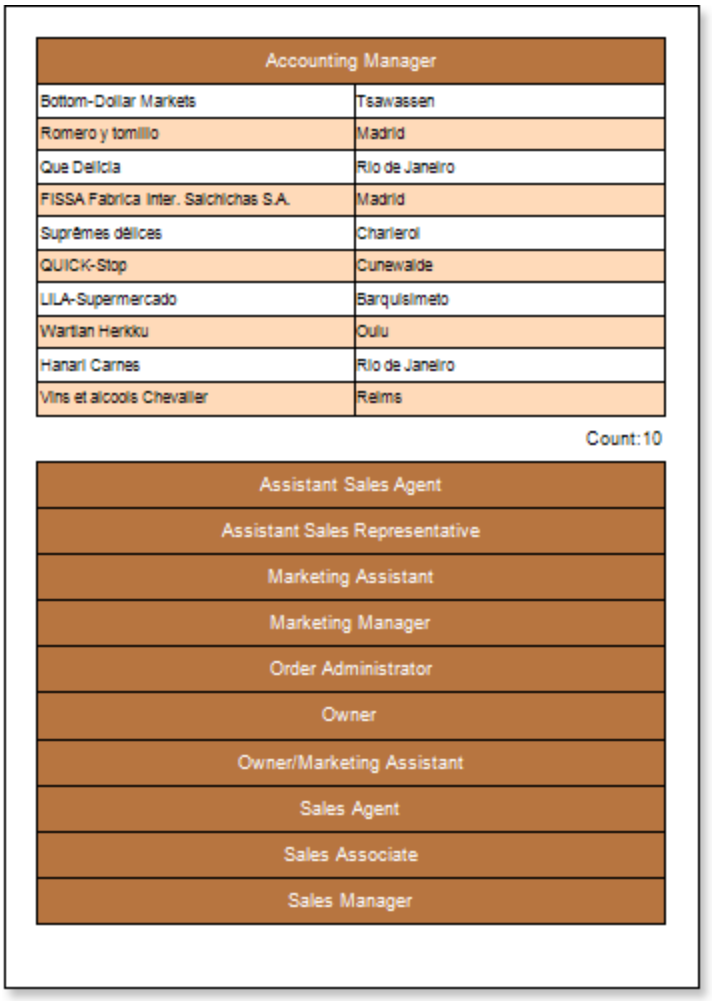

| Accounting Manager | |
|---|---|
| Bottom-Dollar Markets | Tsawassen |
| Romero y tomillo | Madrid |
| Que Delícia | Rio de Janeiro |
| FISSA Fabrica Inter. Salchichas S.A. | Madrid |
| Suprêmes délices | Charleroi |
| QUICK-Stop | Cunewalde |
| LILA-Supermercado | Barquisimeto |
| Wartian Herkku | Oulu |
| Hanari Carnes | Rio de Janeiro |
| Vins et alcools Chevalier | Reims |

Count: 10

| Assistant Sales Agent |
|---|
| Assistant Sales Representative |
| Marketing Assistant |
| Marketing Manager |
| Order Administrator |
| Owner |
| Owner/Marketing Assistant |
| Sales Agent |
| Sales Associate |
| Sales Manager |

## 4.27 Report with Table Component

Do the following steps to design a report with the **Table** component:

1. Run the designer;
2. Connect the data:
    2.1. Create a **New Connection**;
    2.2. Create a **New Data Source**;

3. Put a **Table** component on a page of a report template.

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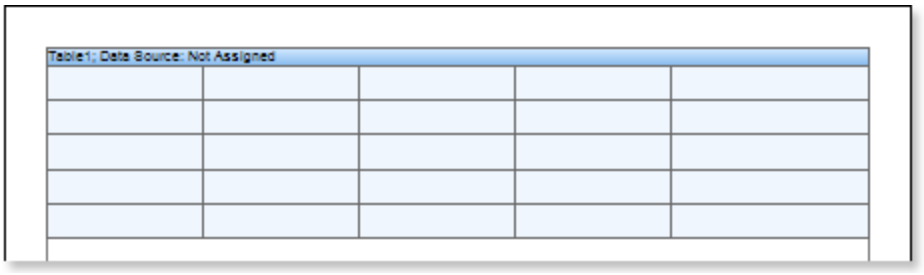
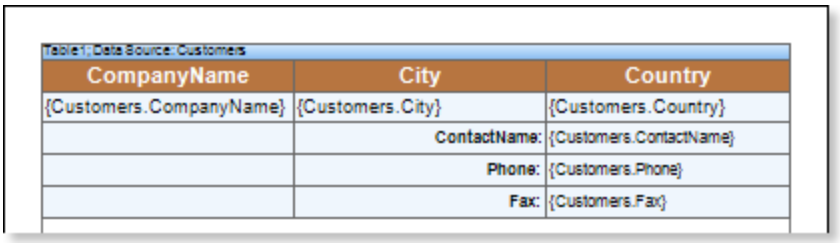



4. Edit the **Table** component:
   4.1. Set the amount of columns and rows using, for example, the **RowCount** and **ColumnCount** properties. Set these properties to 5 and 3 respectively;
   4.2. Set the number of headers and footers in the table using, for example, the **HeaderRowsCount** and **FooterRowsCount** properties. Set the **HeaderRowsCount** property to **1**;
   4.3. Align the **Table** component by height;
   4.4. Change values of the component. for example, set the **CanBreak** property to **true**, if it is required for the **Table** component be broken;

5. Set the data source of the **Table** component using the **Data Source** property:

6. Put some text and expressions in the table cells. For example, cells of the first and third rows will contain only text, that will be a data header. Cells of the second and fourth rows will contain expressions, references to data source;
7. Edit text and cells:
   7.1. Set font parameters of text: size, style, color;
   7.2. Set color of table cells;
   7.3. Align text in cells;
   7.4. Change values of cells. For example, set the **WordWrap** property to **true**, if it is necessary for the text to be wrapped.




8. Click the **Preview** button or invoke the **Viewer**, pressing **F5** or clicking the **Preview** menu item. After rendering all references to data fields will be changed on data form specified fields. Data will be output in consecutive order from the database that was defined for this report. The amount of copies of the **Table** in the rendered report will be the same as the amount of data rows in the database.

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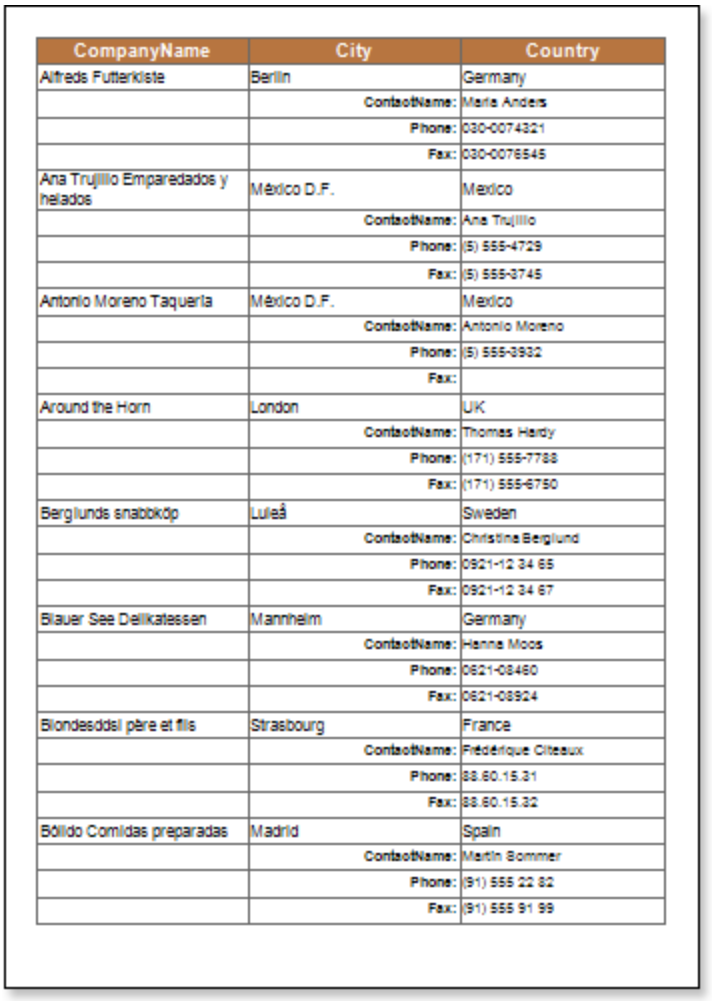

| CompanyName | City | Country |
|---|---|---|
| Alfreds Futterkiste | Berlin | Germany |
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| | Phone: | 030-0074321 |
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| Ana Trujillo Emparedados y helados | México D.F. | Mexico |
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| Around the Horn | London | UK |
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| | Phone: | 88.60.15.31 |
| | Fax: | 88.60.15.32 |
| Bólido Comidas preparadas | Madrid | Spain |
| | ContactName: | Martín Sommer |
| | Phone: | (91) 555 22 82 |
| | Fax: | (91) 555 91 99 |

## Adding Styles

1. Go back to the report template;
2. Select the **Table** component;
3. Change values of **Even style** and **Odd style** properties. If values of these properties are not set, then select the **Edit Styles** in the list of values of these properties and, using **Style Designer**, create a new style. The picture below shows the **Style Designer**:

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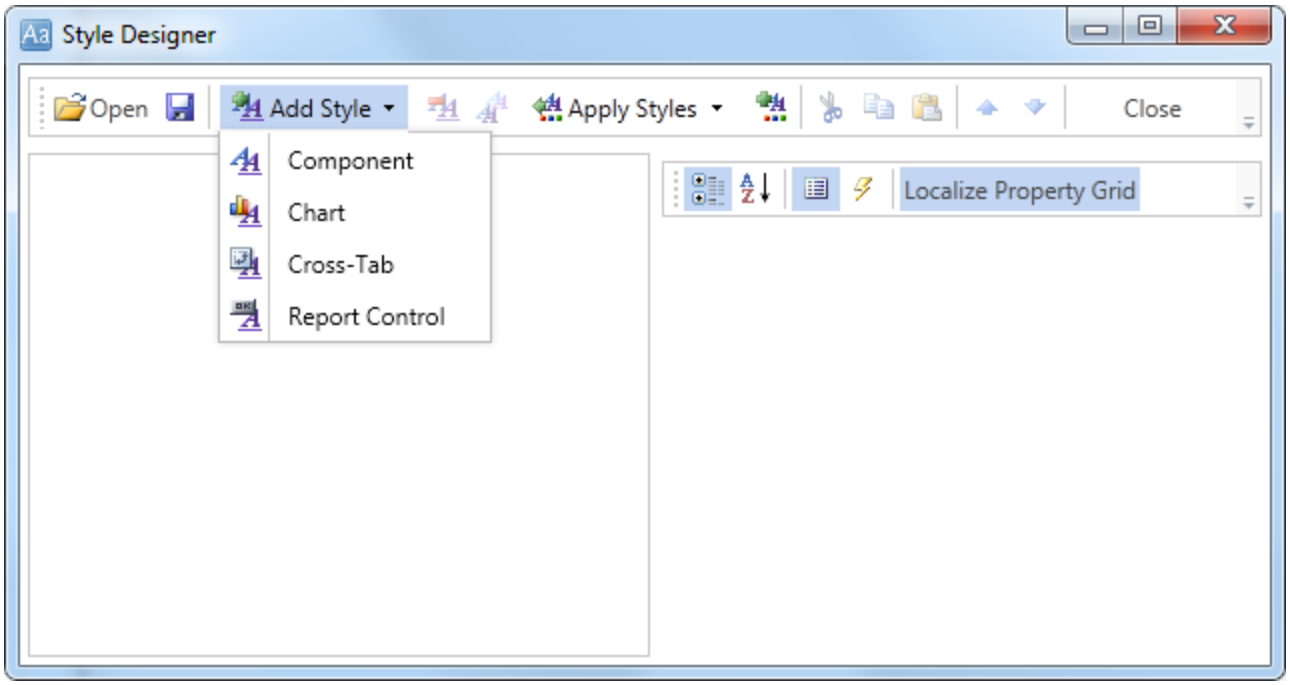


Click the **Add Style** button to start creating a style. Select **Component** from the drop down list. Set the **Brush.Color** property to change the background color of a row. The picture below shows a sample of the **Style Designer** with the list of values of the **Brush.Color** property:

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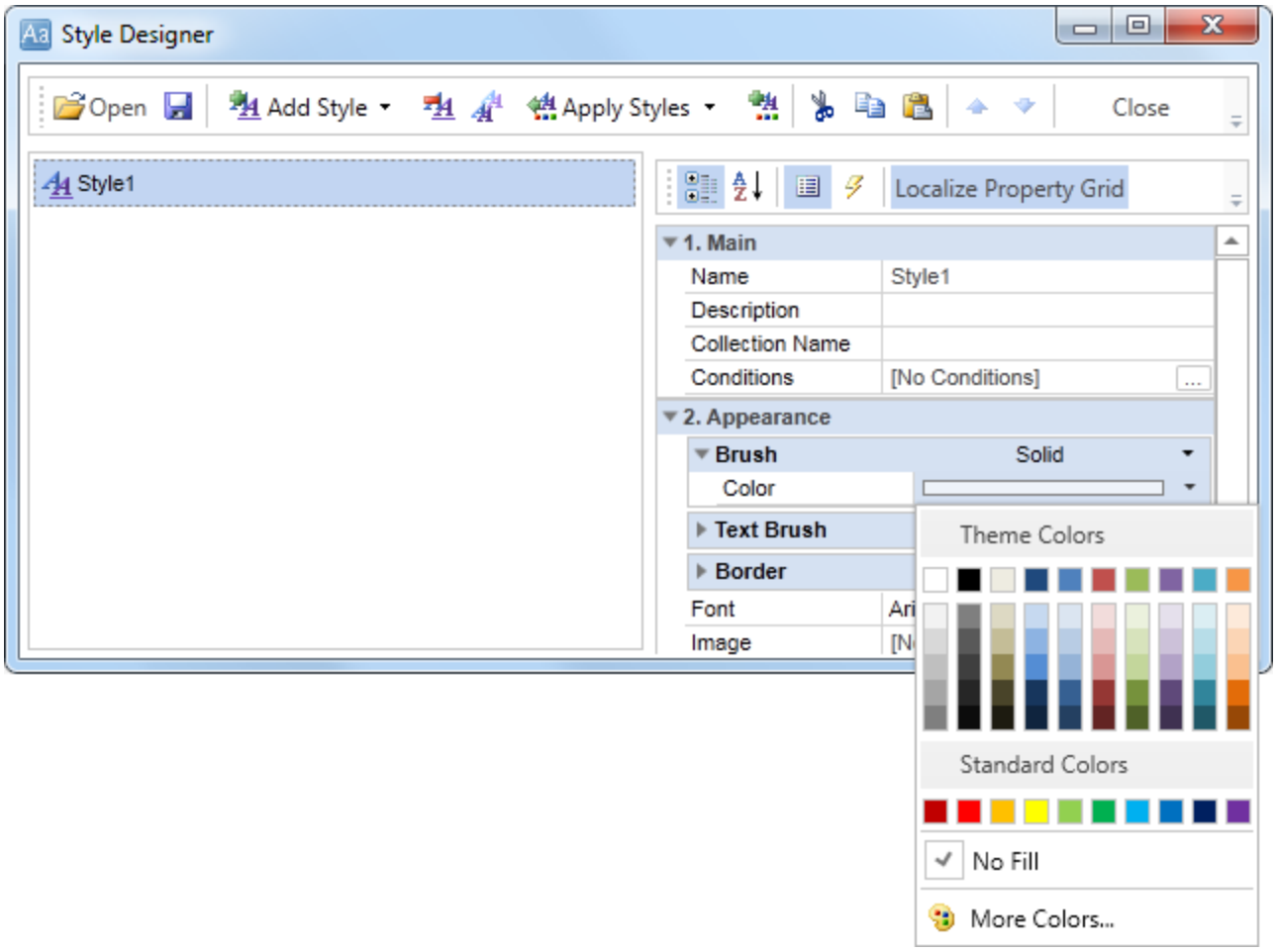


Click **Close**. Then a new value in the list of **Even style** and **Odd style** properties (a style of a list of odd and even rows) will appear.

4. To render the report, click the **Preview** button or invoke the **Viewer**, pressing **F5** or clicking the **Preview** menu item.

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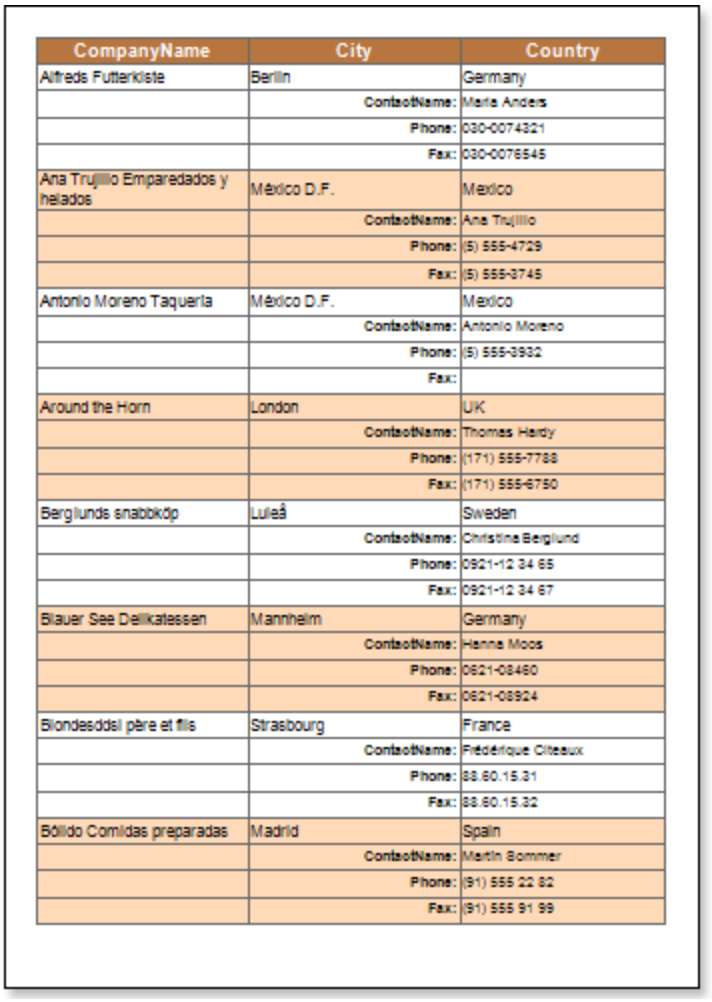

| CompanyName | City | Country |
|---|---|---|
| Alfreds Futterkiste | Berlin | Germany |
| | ContactName: | Maria Anders |
| | Phone: | 030-0074321 |
| | Fax: | 030-0076545 |
| Ana Trujillo Emparedados y helados | México D.F. | Mexico |
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| | Phone: | (5) 555-4729 |
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| Antonio Moreno Taquería | México D.F. | Mexico |
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| Around the Horn | London | UK |
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| | Phone: | (171) 555-7788 |
| | Fax: | (171) 555-6750 |
| Berglunds snabbköp | Luleå | Sweden |
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| | Phone: | 0921-12 34 65 |
| | Fax: | 0921-12 34 67 |
| Blauer See Delikatessen | Mannheim | Germany |
| | ContactName: | Hanna Moos |
| | Phone: | 0621-08460 |
| | Fax: | 0621-08924 |
| Blondesddsl père et fils | Strasbourg | France |
| | ContactName: | Frédérique Citeaux |
| | Phone: | 88.60.15.31 |
| | Fax: | 88.60.15.32 |
| Bólido Comidas preparadas | Madrid | Spain |
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| | Phone: | (91) 555 22 82 |
| | Fax: | (91) 555 91 99 |

## 4.28 Master-Detail Report with Table

Do the following steps to design a **Master-Detail** report with the **Table** component:

1. Run the designer;
2. Connect the data:
    2.1. Create a **New Connection**;
    2.2. Create a **New Data Source**;

3. Create **Relation** between data sources. If the relation will not be created and/or the **Relation** property of the **Detail** data source will not be filled, then, for **Master** entry, all **Detail** entries will be output.
4. Put two **Table** components on a page of a report template.

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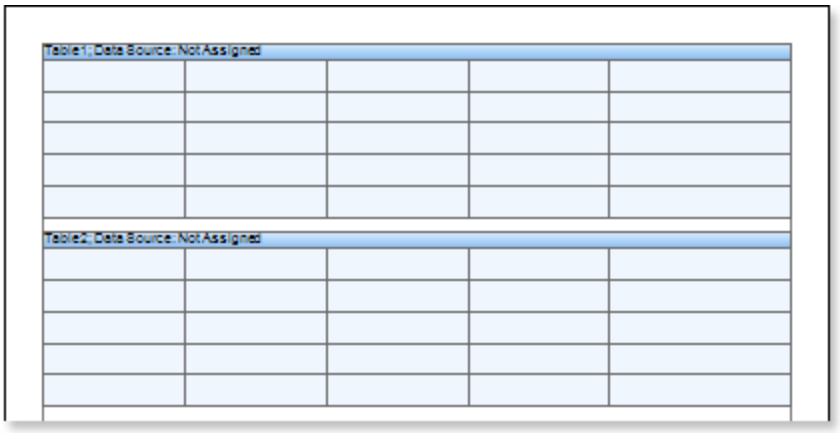


5. Edit **Table** components:

5.1. Change the number of rows and columns in the **Table** component. For example, using the **RowCount** and **ColumnCount** properties. Set the **RowCount** and **ColumnCount** properties of the **Table1** component to **3** and **1** respectively. And for the **Table2** component - values of **3** and **3**;

5.2. Set the number of headers and footers in the table using, for example, the **HeaderRowsCount** and **FooterRowsCount** properties. Set the **FooterRowsCount** property of the **Table1** to **1**. Set the **HeaderRowsCount** and **FooterRowsCount** property of the **Table2** to **1** and **1** respectively;

5.3. Align the **Table** component by height;

5.4. Set the height of rows in the table. To do this, select the **Table** component and, dragging the horizontal border line, edit the row height. In addition, if you want to change the row height, leaving the height of the **Table** component unchanged, it is necessary to hold down the **Ctrl** button before editing the row height;

5.5. Change columns width in the table. To do this, select the **Table** component, and change width by dragging the vertical border of a column;

5.6. Change values of properties. For example, set the **Print if Detail Empty** property of the **Table** component, which is the **Master** component in the **Master-Detail** report, to **true**, if you want the **Master** entries be printed in any case, even if the **Detail** entries are not available. Set the **CanShrink** property of the **Table** component, which is the **Detail** component in the **Master-Detail** report to **true**, if you want this component be shrunk;

5.7. Set color of table cells;

5.8. Set **Borders** of cells of the **Table** component, if necessary;

6. Specify data sources for the **Table** components, as well as set the **Master** component. In our case, the **Master** component is the **Table1**. This means that in the **Data Setup** window of the **Table2** component on the tab of the **Master Component**, specify **Table1** as the **Master** component;

7. Fill in the DataRelation property of the **Table2** component, which is the **Detail** entry in this report:

8. Set expressions in table cells. Where an expression is a reference to a data source. For example: the **Table1** component, which is the **Master** component, set the following expressions for the first and second rows: **{Categories.CategoryName}** and **{Categories.Description}**, respectively. The third row of the **Table1** is a total row, and in this case, it is blank. The first row of the **Table2** is the header row of data, so the expression in cells of the first row will be the data header. In the cells of the second row

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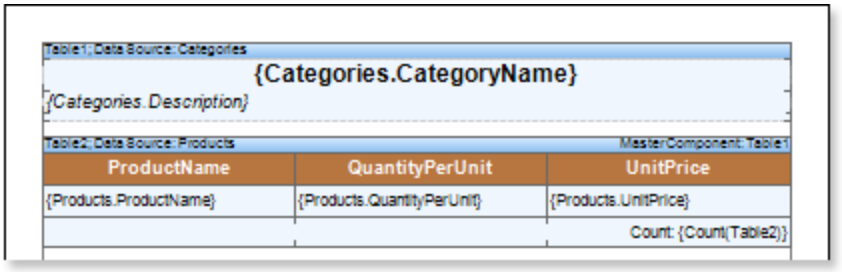
we specify references to data sources. The third row in the **Table2** is the total row, so the expression in this line will be a total. Set the Count function for the third row;

9. Edit text boxes and cells:
    9.1. Set the font options: size, style, color;
    9.2. Set the background color of cells;
    9.3. Align the text in cells;
    9.4. Set the value of properties of cells. For example, set the **Word Wrap** property to **true**, if you want the text be wrapped;




10. Click the **Preview** button or invoke the **Viewer**, pressing **F5** or clicking the **Preview** menu item. After rendering all references to data fields will be changed on data form specified fields.

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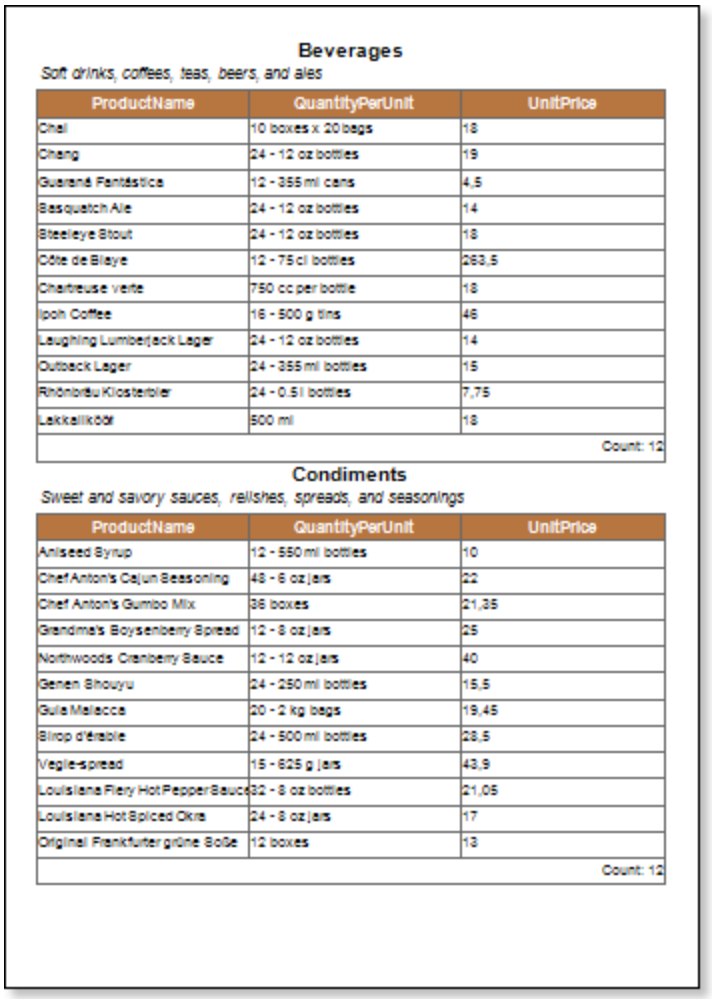

**Beverages**

*Soft drinks, coffees, teas, beers, and ales*

| ProductName | QuantityPerUnit | UnitPrice |
|---|---|---|
| Chai | 10 boxes x 20 bags | 18 |
| Chang | 24 - 12 oz bottles | 19 |
| Guaraná Fantástica | 12 - 355 ml cans | 4,5 |
| Sasquatch Ale | 24 - 12 oz bottles | 14 |
| Steeleye Stout | 24 - 12 oz bottles | 18 |
| Côte de Blaye | 12 - 75 cl bottles | 263,5 |
| Chartreuse verte | 750 cc per bottle | 18 |
| Ipoh Coffee | 16 - 500 g tins | 46 |
| Laughing Lumberjack Lager | 24 - 12 oz bottles | 14 |
| Outback Lager | 24 - 355 ml bottles | 15 |
| Rhönbräu Klosterbier | 24 - 0.5 l bottles | 7,75 |
| Lakkalikööri | 500 ml | 18 |

Count: 12

**Condiments**

*Sweet and savory sauces, relishes, spreads, and seasonings*

| ProductName | QuantityPerUnit | UnitPrice |
|---|---|---|
| Aniseed Syrup | 12 - 550 ml bottles | 10 |
| Chef Anton's Cajun Seasoning | 48 - 6 oz jars | 22 |
| Chef Anton's Gumbo Mix | 36 boxes | 21,35 |
| Grandma's Boysenberry Spread | 12 - 8 oz jars | 25 |
| Northwoods Cranberry Sauce | 12 - 12 oz jars | 40 |
| Genen Shouyu | 24 - 250 ml bottles | 15,5 |
| Gula Malacca | 20 - 2 kg bags | 19,45 |
| Sirop d'érable | 24 - 500 ml bottles | 28,5 |
| Vegie-spread | 15 - 625 g jars | 43,9 |
| Louisiana Fiery Hot Pepper Sauce | 32 - 8 oz bottles | 21,05 |
| Louisiana Hot Spiced Okra | 24 - 8 oz jars | 17 |
| Original Frankfurter grüne Soße | 12 boxes | 13 |

Count: 12

### Adding Styles

1. Go back to the report template;
2. Select the **Table** component. In this case the **Table2** component;
3. Change values of **Even style** and **Odd style** properties. If values of these properties are not set, then select the **Edit Styles** in the list of values of these properties and, using **Style Designer**, create a new style. The picture below shows the **Style Designer**:

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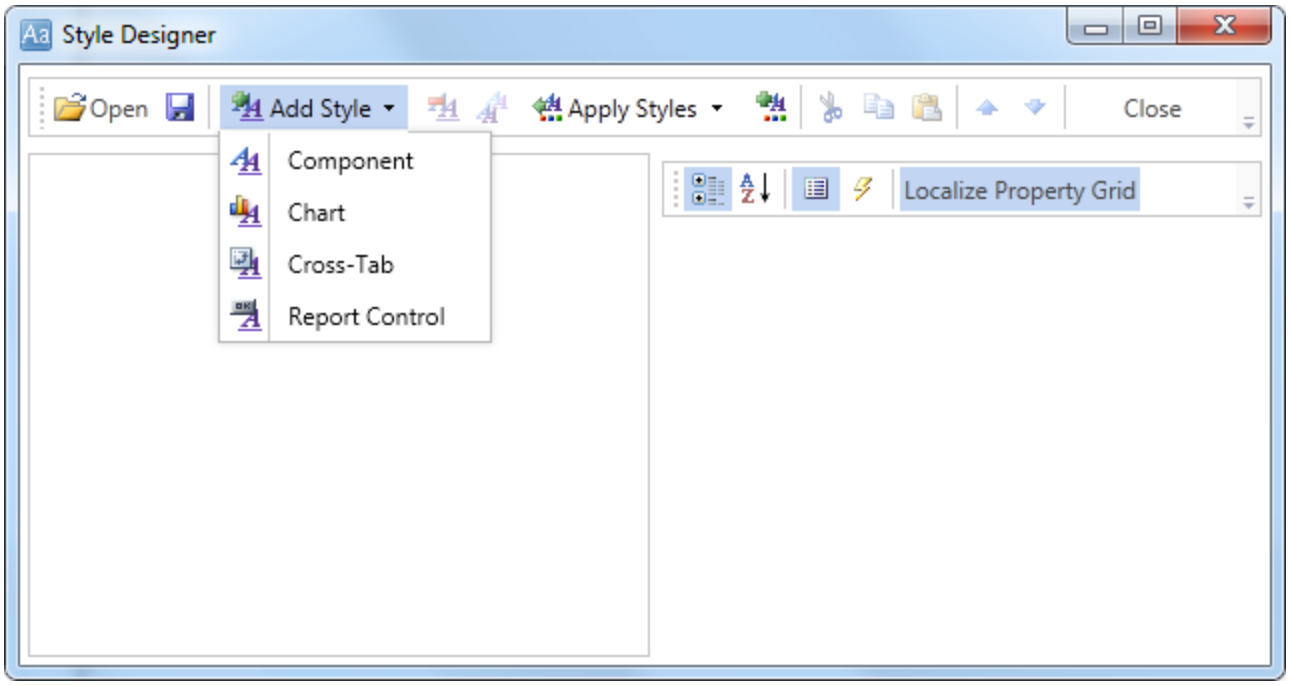


Click the **Add Style** button to start creating a style. Select **Component** from the drop down list. Set the **Brush.Color** property to change the background color of a row. The picture below shows a sample of the **Style Designer** with the list of values of the **Brush.Color** property:

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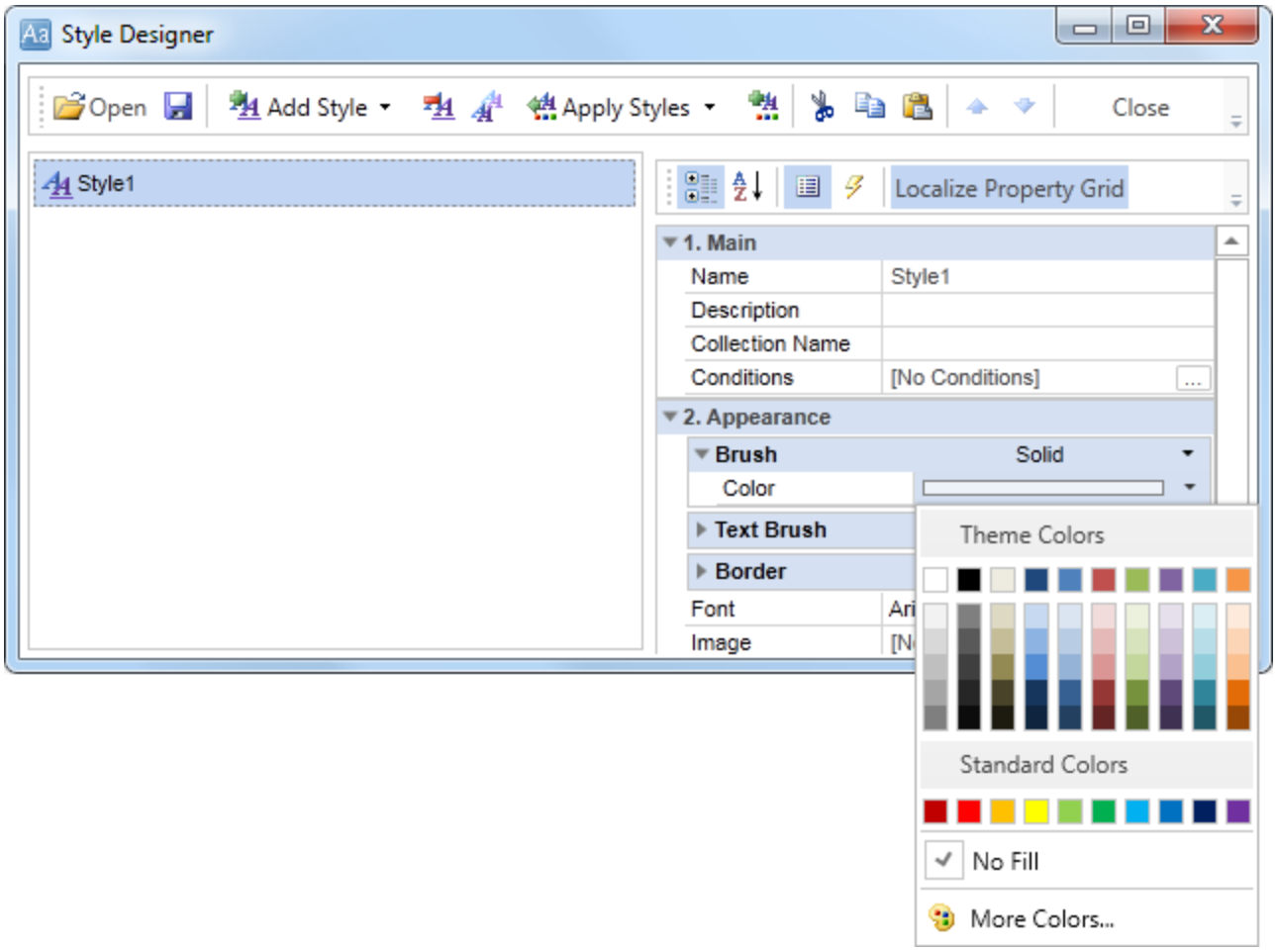


Click **Close**. Then a new value in the list of **Even style** and **Odd style** properties (a style of a list of odd and even rows) will appear.

4. To render the report, click the **Preview** button or invoke the **Viewer**, pressing **F5** or clicking the **Preview** menu item.

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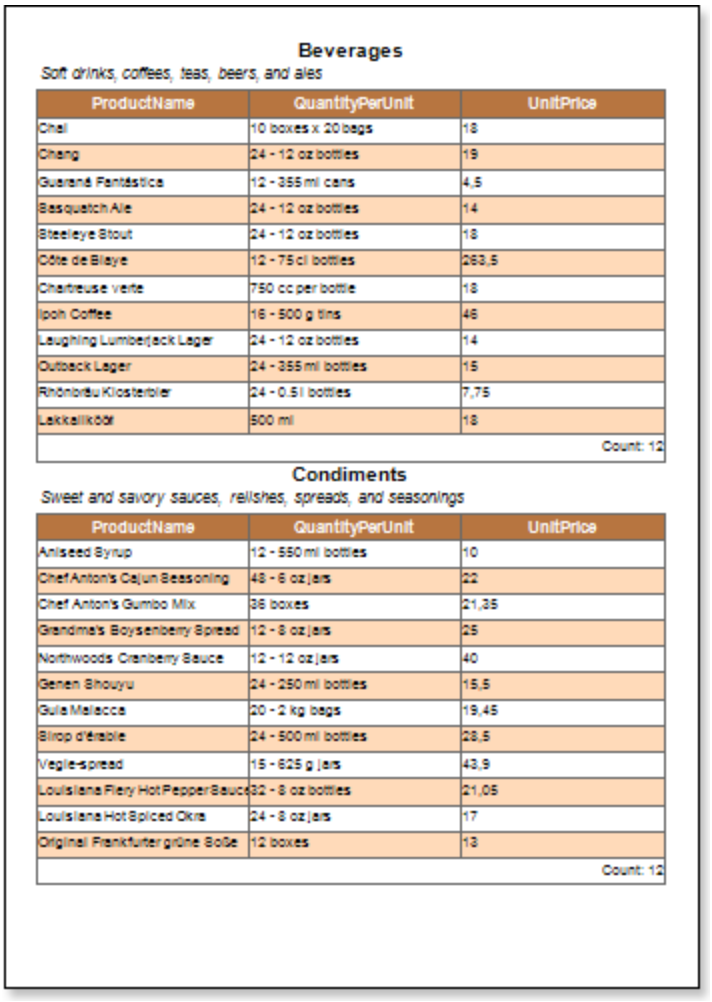

**Beverages**

*Soft drinks, coffees, teas, beers, and ales*

| ProductName | QuantityPerUnit | UnitPrice |
|---|---|---|
| Chai | 10 boxes x 20 bags | 18 |
| Chang | 24 - 12 oz bottles | 19 |
| Guaraná Fantástica | 12 - 355 ml cans | 4,5 |
| Sasquatch Ale | 24 - 12 oz bottles | 14 |
| Steeleye Stout | 24 - 12 oz bottles | 18 |
| Côte de Blaye | 12 - 75 cl bottles | 263,5 |
| Chartreuse verte | 750 cc per bottle | 18 |
| Ipoh Coffee | 16 - 500 g tins | 46 |
| Laughing Lumberjack Lager | 24 - 12 oz bottles | 14 |
| Outback Lager | 24 - 355 ml bottles | 15 |
| Rhönbräu Klosterbier | 24 - 0.5 l bottles | 7,75 |
| Lakkalikööri | 500 ml | 18 |

Count: 12

**Condiments**

*Sweet and savory sauces, relishes, spreads, and seasonings*

| ProductName | QuantityPerUnit | UnitPrice |
|---|---|---|
| Aniseed Syrup | 12 - 550 ml bottles | 10 |
| Chef Anton's Cajun Seasoning | 48 - 6 oz jars | 22 |
| Chef Anton's Gumbo Mix | 36 boxes | 21,35 |
| Grandma's Boysenberry Spread | 12 - 8 oz jars | 25 |
| Northwoods Cranberry Sauce | 12 - 12 oz jars | 40 |
| Genen Shouyu | 24 - 250 ml bottles | 15,5 |
| Gula Malacca | 20 - 2 kg bags | 19,45 |
| Sirop d'érable | 24 - 500 ml bottles | 28,5 |
| Vegie-spread | 15 - 625 g jars | 43,9 |
| Louisiana Fiery Hot Pepper Sauce | 32 - 8 oz bottles | 21,05 |
| Louisiana Hot Spiced Okra | 24 - 8 oz jars | 17 |
| Original Frankfurter grüne Soße | 12 boxes | 13 |

Count: 12

## 4.29 Anchors in Report

A report with anchors is a report in what there is a page of contents and links (called anchors) to other pages in the report. Follow the steps below in order to design a report with the anchors.

**Creating a page of contents**

1. Run the designer;
2. Connect the data:
    2.1. Create a **New Connection**;
    2.2. Create a **New Data Source**;

3. Create **Relation** between data sources. If the relation will not be created and/or the **Relation** property of the **Detail** data source will not be filled, then, for **Master** entry, all **Detail** entries will be output;
4. Change the number of columns on a page. For example, set the **Columns** property to **2**, and the **ColumnGaps** property to **1**;

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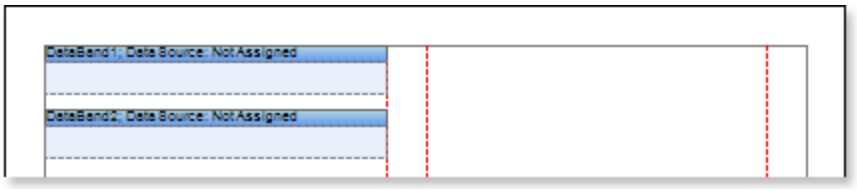
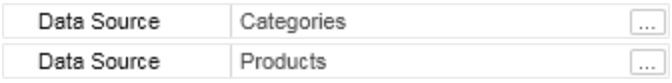
5. Put two **DataBands** on a page of the report template

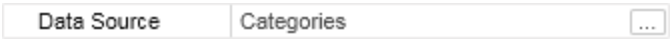



6. Edit **DataBand1** and **DataBand2**:
   6.1. Align them by height;
   6.2. Change values of required properties. For example, if to set the **PrintIfDetailEmpty** property of the **DataBand1** that is the **Master** component in the **Master-Detail** report to **true**, if it is necessary all **Master** entries be printed in any case, even if **Detail** entries not present. And set the **CanShrink** property of the **DataBand2** that is the **Detail** component in the **Master-Detail** report to **true**, if it is necessary to shrink this band;
   6.3. Change the background color of the **DataBands**;
   6.4. Enable **Borders** of the band, if required;

7. Specify the data sources for **DataBands**, as well as assign the **Master** component. In this case, the **Master** component is the upper **DataBand1**, and hence in the **DataSetup** window the lower **DataBand2** on the **Wizard** tab in the **Master Component** should indicate **DataBand1** as a **Master** component. Indicate the data sources for **DataBands** using the **Data Source** property:




8. Fill the **DataRelation** property of the **DataBand2**, which is the **Detail** component:




9. Put text components with expressions on **DataBands**. For example: on the **DataBand1**, which is the **Master** component, we put the text component with the following expression: **{Categories.CategoryName}**, and on the **DataBand2**, which is the **Detail** component we put two text components with expressions: **{Products.ProductName}** and **{GetAnchorPageNumber (sender.TagValue)}**;

10. Edit texts and text components of **DataBands**:
   10.1. Drag and drop a text component in the **DataBand**;
   10.2. Set the font settings: size, style, color;
   10.3. Align the text component by height and width;
   10.4. Set the background color of the text component;
   10.5. Align the text in the component;
   10.6. Change the values of the required properties. For example set **WordWrap** property to **true**, if you want the text be wrapped;
   10.7. If necessary, set **Borders** for the text component;
   10.8. Set the border color.
   10.9. Change the value of the **Hyperlink** property for the text component with the **{Products.ProductName}** expression. In this case, set the **Hyperlink** property to the **#{Products.ProductName}** value;

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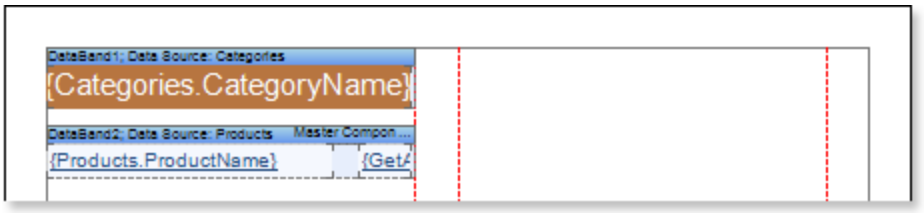
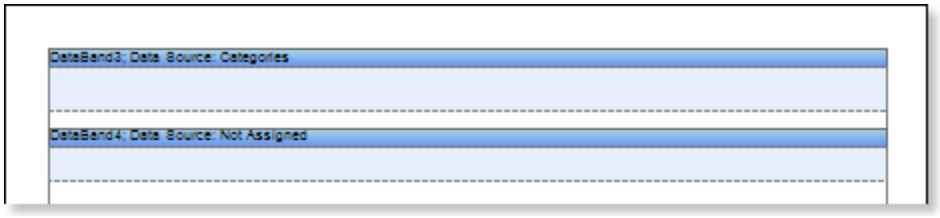
10.10 Change the value of the **Hyperlink** and **Tag** properties for the text component with the **{GetAnchorPageNumber(sender.TagValue)}**. The **Hyperlink** property should be set to **# {Products.ProductName}**, and the **Tag** property to **{Products.ProductName}**.



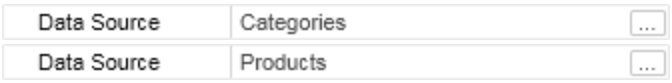

**Creating a master list**

11. Create a second page in the report template;
12. Put two **DataBands** on the page of the report template.

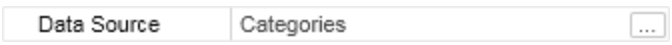



13. Edit **DataBand3** and **DataBand4**:
    13.1. Align the **DataBand** by height;
    13.2. Change the values of the required properties. For example set the **Print if Detail Empty** property of the **DataBand3**, which is the **Master** component in the Master-Detail report to **true**, if you want the Master records be printed in any case, even if the **Detail** entries are not present. Set the **CanShrink** property of the **DataBand4**, which is the **Detail** component in the Master-Detail report to **true**, if it is necessary for this band be shrunk;
    13.3. Set background color of the **DataBand**;
    13.4. If it is necessary, set **Borders** for the **DataBand**;

14. Specify the data sources for DataBands, as well as assign the **Master** component. In this case, the **Master** component is the upper **DataBand3**, and hence in the **DataSetup** window the lower **DataBand4** on the **Wizard** tab in the **Master Component** should indicate **DataBand3** as a **Master** component. Indicate the data sources for **DataBands** using the **Data Source** property:




15. Fill the **DataRelation** property of the **DataBand4**, which is the **Detail** component:




16. Put text components with expressions on **DataBands**. For example: on the **DataBand3**, which is the **Master** component, we put the text component with the following expression: **{Categories. CategoryName}**, and on the **DataBand4**, which is the **Detail** component we put two text components with expressions: **{Products.ProductName}, {Products.QuantityPerUnit}**, and **{Products.UnitPrice}**;

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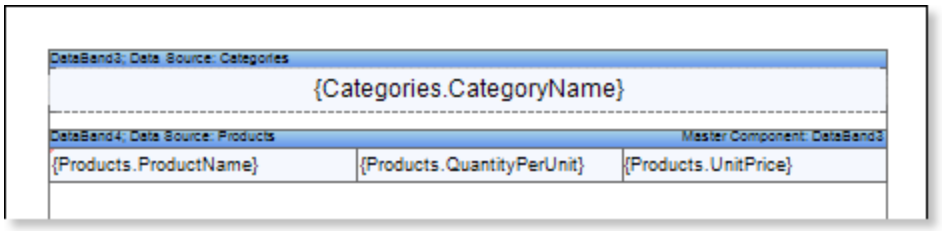
17. Edit texts and text components of **DataBands**:
    17.1. Drag and drop a text component in the **DataBand**;
    17.2. Set the font settings: size, style, color;
    17.3. Align the text component by height and width;
    17.4. Set the background color of the text component;
    17.5. Align the text in the component;
    17.6. Change the values of the required properties. For example set **WordWrap** property to **true**, if you want the text be wrapped;
    17.7. If necessary, set **Borders** for the text component;
    17.8. Set the border color.




18. Select the **DataBand**, which is the **Master** data source. In our case, this is the **DataBand3**:
    18.1. Set the **Interaction.Bookmark** property of the **DataBand3** to **{Categories.CategoryName}**;

19. Select the **DataBand**, which is the Detail data source. In our case, this is the **DataBand4**:
    19.1. Set the **Interaction.Bookmark** property to **{Products.ProductName}**;
    19.2. Subscribe to the event. Set the **RenderingEvent** to **{AddAnchor (Products.ProductName);}**;

**Report rendering**

20. Click the **Preview** button or invoke the **Viewer**, pressing **F5** or clicking the **Preview** menu item. After rendering a report all references to data fields will be changed on data from specified fields.

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**Beverages**


Chai 3
Chang 3
Guaraná Fantástica 3
Sasquatch Ale 3
Steeleye Stout 3
Côte de Blaye 3
Chartreuse verte 3
Ipoh Coffee 3
Laughing Lumberjack Lager 3
Outback Lager 3
Rhönbräu Klosterbier 3
Lakkalikööri 3


**Condiments**


Aniseed Syrup 3
Chef Anton's Cajun Seasoning 3
Chef Anton's Gumbo Mix 3
Grandma's Boysenberry Spread 3
Northwoods Cranberry Sauce 3
Genen Shouyu 3
Gula Malacca 3
Sirop d'érable 3
Vegie-spread 3
Louisiana Fiery Hot Pepper Sau 3
Louisiana Hot Spiced Okra 3
Original Frankfurter grüne Soße 3


**Confections**


Pavlova 3
Teatime Chocolate Biscuits 3
Sir Rodney's Marmalade 3
Sir Rodney's Scones 3
NuNuCa Nuß-Nougat-Creme 3
Gumbär Gummibärchen 3
Schoggi Schokolade 4
Zaanse koeken 4
Chocolade 4
Maxilaku 4
Valkoinen suklaa 4
Tarte au sucre 4
Scottish Longbreads 4


**Dairy Products**


Queso Cabrales 4
Queso Manchego La Pastora 4
Gorgonzola Telino 4
Mascarpone Fabioli 4
Geitost 4
Raclette Courdavault 4
Camembert Pierrot 4
Gudbrandsdalsost 4
Flotemysost 4
Mozzarella di Giovanni 4


**Grains/Cereals**


Gustaf's Knäckebröd 4
Tunnbröd 4
Singaporean Hokkien Fried Mee 4
Filo Mix 4
Gnocchi di nonna Alice 4
Ravioli Angelo 4
Wimmers gute Semmelknödel 4


**Meat/Poultry**


Mishi Kobe Niku 5
Alice Mutton 5
Thüringer Rostbratwurst 5
Perth Pasties 5
Tourtière 5
Pâté chinois 5


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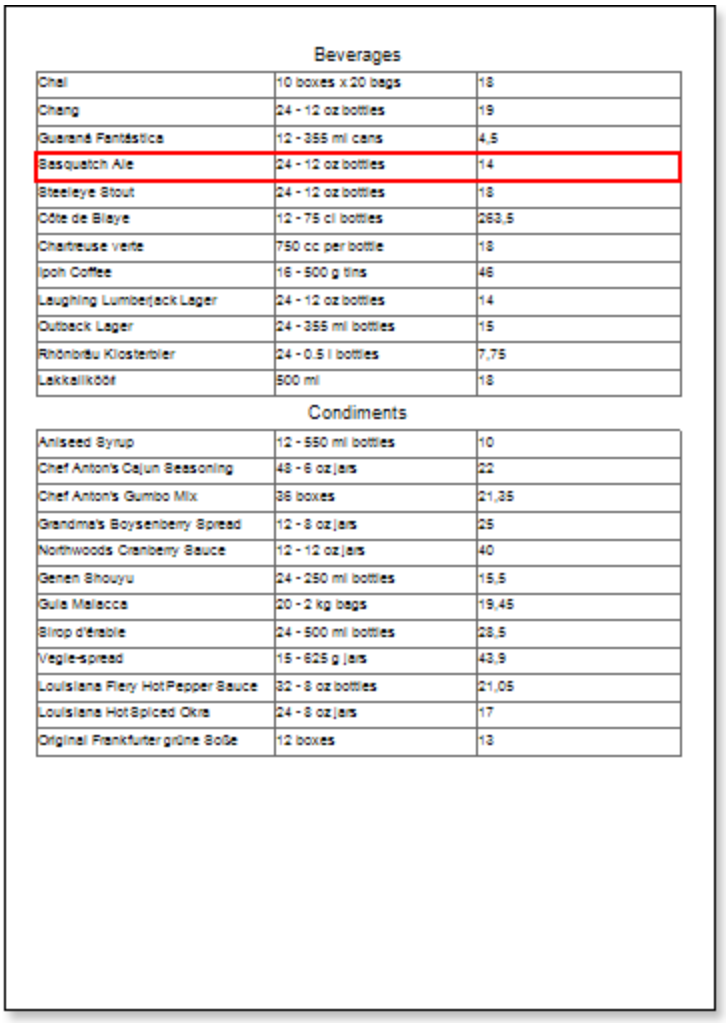

Beverages

| | | |
|---|---|---|
| Chai | 10 boxes x 20 bags | 18 |
| Chang | 24 - 12 oz bottles | 19 |
| Guaraná Fantástica | 12 - 355 ml cans | 4,5 |
| Sasquatch Ale | 24 - 12 oz bottles | 14 |
| Steeleye Stout | 24 - 12 oz bottles | 18 |
| Côte de Blaye | 12 - 75 cl bottles | 263,5 |
| Chartreuse verte | 750 cc per bottle | 18 |
| Ipoh Coffee | 16 - 500 g tins | 46 |
| Laughing Lumberjack Lager | 24 - 12 oz bottles | 14 |
| Outback Lager | 24 - 355 ml bottles | 15 |
| Rhönbräu Klosterbier | 24 - 0.5 l bottles | 7,75 |
| Lakkalikööri | 500 ml | 18 |

Condiments

| | | |
|---|---|---|
| Aniseed Syrup | 12 - 550 ml bottles | 10 |
| Chef Anton's Cajun Seasoning | 48 - 6 oz jars | 22 |
| Chef Anton's Gumbo Mix | 36 boxes | 21,35 |
| Grandma's Boysenberry Spread | 12 - 8 oz jars | 25 |
| Northwoods Cranberry Sauce | 12 - 12 oz jars | 40 |
| Genen Shouyu | 24 - 250 ml bottles | 15,5 |
| Gula Malacca | 20 - 2 kg bags | 19,45 |
| Sirop d'érable | 24 - 500 ml bottles | 28,5 |
| Vegie-spread | 15 - 625 g jars | 43,9 |
| Louisiana Fiery Hot Pepper Sauce | 32 - 8 oz bottles | 21,05 |
| Louisiana Hot Spiced Okra | 24 - 8 oz jars | 17 |
| Original Frankfurter grüne Soße | 12 boxes | 13 |

In the rendered report, when clicking an entry in the table of contents the transition to this entry in the report will be done.

21. Go back to the report template;
22. If needed, add other bands to the report template, for example, **HeaderBand**;
23. Edit this band:
    23.1. Align it by height;
    23.2. Change values of properties, if required;
    23.3. Change the background of the band;
    23.4. Set **Borders**, if required;
    23.5. Set the border color.

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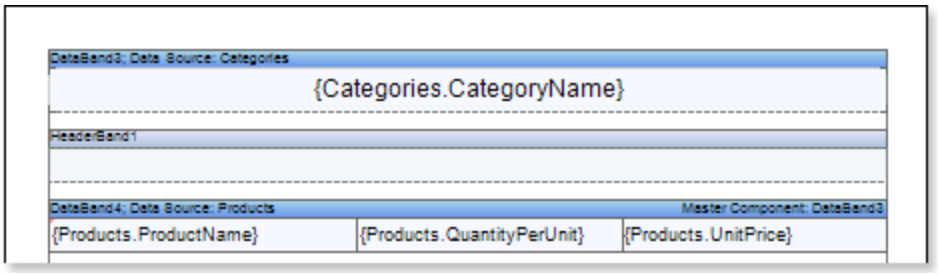
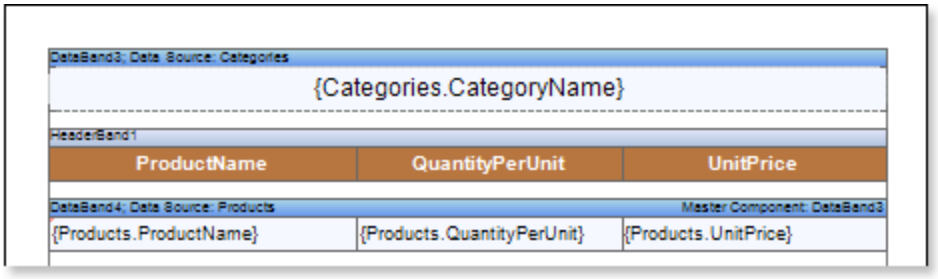



24. Put text components with expressions in this band. The expression in the text component is a header in the **HeaderBand**.
25. Edit text and text components:
    25.1. Drag and drop the text component in the band;
    25.2. Change font options: size, type, color;
    25.3. Align text component by height and width;
    25.4. Change the background of the text component;
    25.5. Align text in the text component;
    25.6. Change values of text component properties, if required;
    25.7. Enable **Borders** of the text component, if required;
    25.8. Set the border color.




26. Click the **Preview** button or invoke the **Viewer**, pressing **F5** or clicking the **Preview** menu item. After rendering all references to data fields will be changed on data form specified fields. Data will be output in consecutive order from the database that was defined for this report. The amount of copies of the **DataBand** in the rendered report will be the same as the amount of data rows in the database.

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Beverages
Chai 3
Chang 3
Guaraná Fantástica 3
Sasquatch Ale 3
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Condiments
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Sirop d'érable 3
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Confections
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Sir Rodney's Scones 4
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Gumbär Gummibärchen 4
Schoggi Schokolade 4
Zaanse koeken 4
Chocolade 4
Maxilaku 4
Valkoinen suklaa 4
Tarte au sucre 4
Scottish Longbreads 4
Dairy Products
Queso Cabrales 4
Queso Manchego La Pastora 4
Gorgonzola Telino 4
Mascarpone Fabioli 4
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Camembert Pierrot 4
Gudbrandsdalsost 4
Flotemysost 4
Mozzarella di Giovanni 4
Grains/Cereals
Gustaf's Knäckebröd 4
Tunnbröd 4
Singaporean Hokkien Fried Mee 4
Filo Mix 4
Gnocchi di nonna Alice 5
Ravioli Angelo 5
Wimmers gute Semmelknödel 5
Meat/Poultry
Mishi Kobe Niku 5
Alice Mutton 5
Thüringer Rostbratwurst 5
Perth Pasties 5
Tourtière 5
Pâté chinois 5


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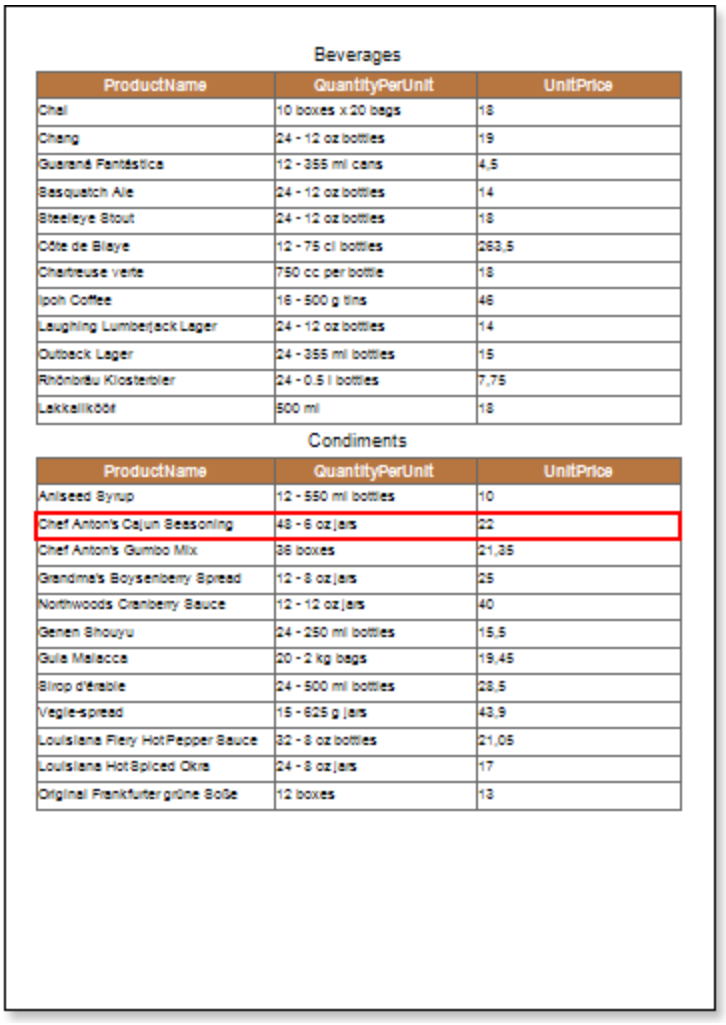

Beverages

| ProductName | QuantityPerUnit | UnitPrice |
|---|---|---|
| Chai | 10 boxes x 20 bags | 18 |
| Chang | 24 - 12 oz bottles | 19 |
| Guaraná Fantástica | 12 - 355 ml cans | 4,5 |
| Sasquatch Ale | 24 - 12 oz bottles | 14 |
| Steeleye Stout | 24 - 12 oz bottles | 18 |
| Côte de Blaye | 12 - 75 cl bottles | 263,5 |
| Chartreuse verte | 750 cc per bottle | 18 |
| Ipoh Coffee | 16 - 500 g tins | 46 |
| Laughing Lumberjack Lager | 24 - 12 oz bottles | 14 |
| Outback Lager | 24 - 355 ml bottles | 15 |
| Rhönbräu Klosterbier | 24 - 0.5 l bottles | 7,75 |
| Lakkalikööri | 500 ml | 18 |

Condiments

| ProductName | QuantityPerUnit | UnitPrice |
|---|---|---|
| Aniseed Syrup | 12 - 550 ml bottles | 10 |
| Chef Anton's Cajun Seasoning | 48 - 6 oz jars | 22 |
| Chef Anton's Gumbo Mix | 36 boxes | 21,35 |
| Grandma's Boysenberry Spread | 12 - 8 oz jars | 25 |
| Northwoods Cranberry Sauce | 12 - 12 oz jars | 40 |
| Genen Shouyu | 24 - 250 ml bottles | 15,5 |
| Gula Malacca | 20 - 2 kg bags | 19,45 |
| Sirop d'érable | 24 - 500 ml bottles | 28,5 |
| Vegie-spread | 15 - 625 g jars | 43,9 |
| Louisiana Fiery Hot Pepper Sauce | 32 - 8 oz bottles | 21,05 |
| Louisiana Hot Spiced Okra | 24 - 8 oz jars | 17 |
| Original Frankfurter grüne Soße | 12 boxes | 13 |

## Adding Styles

1. Go back to the report template;
2. Select the **DataBand**. In our case, select the **DataBand4**;
3. Change values of **Even style** and **Odd style** properties. If values of these properties are not set, then select the **Edit Styles** in the list of values of these properties and, using **Style Designer**, create a new style. The picture below shows the **Style Designer**:

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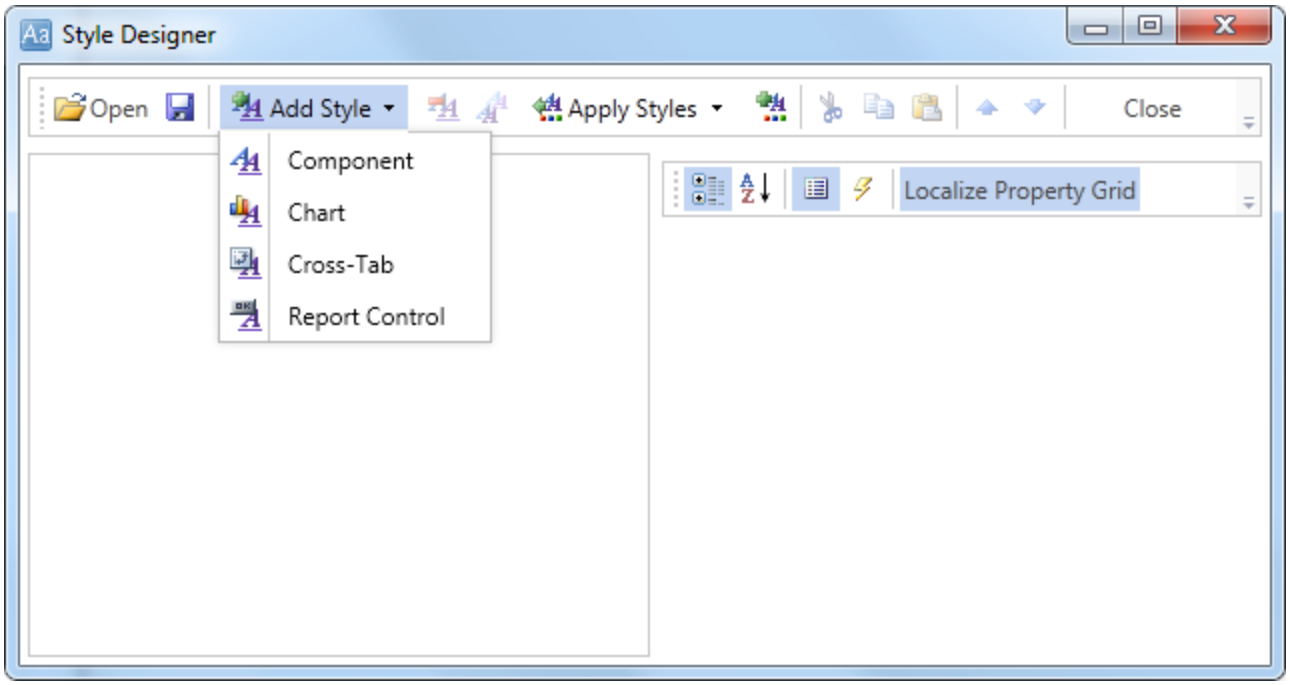


Click the **Add Style** button to start creating a style. Select **Component** from the drop down list. Set the **Brush.Color** property to change the background color of a row. The picture below shows a sample of the **Style Designer** with the list of values of the **Brush.Color** property:

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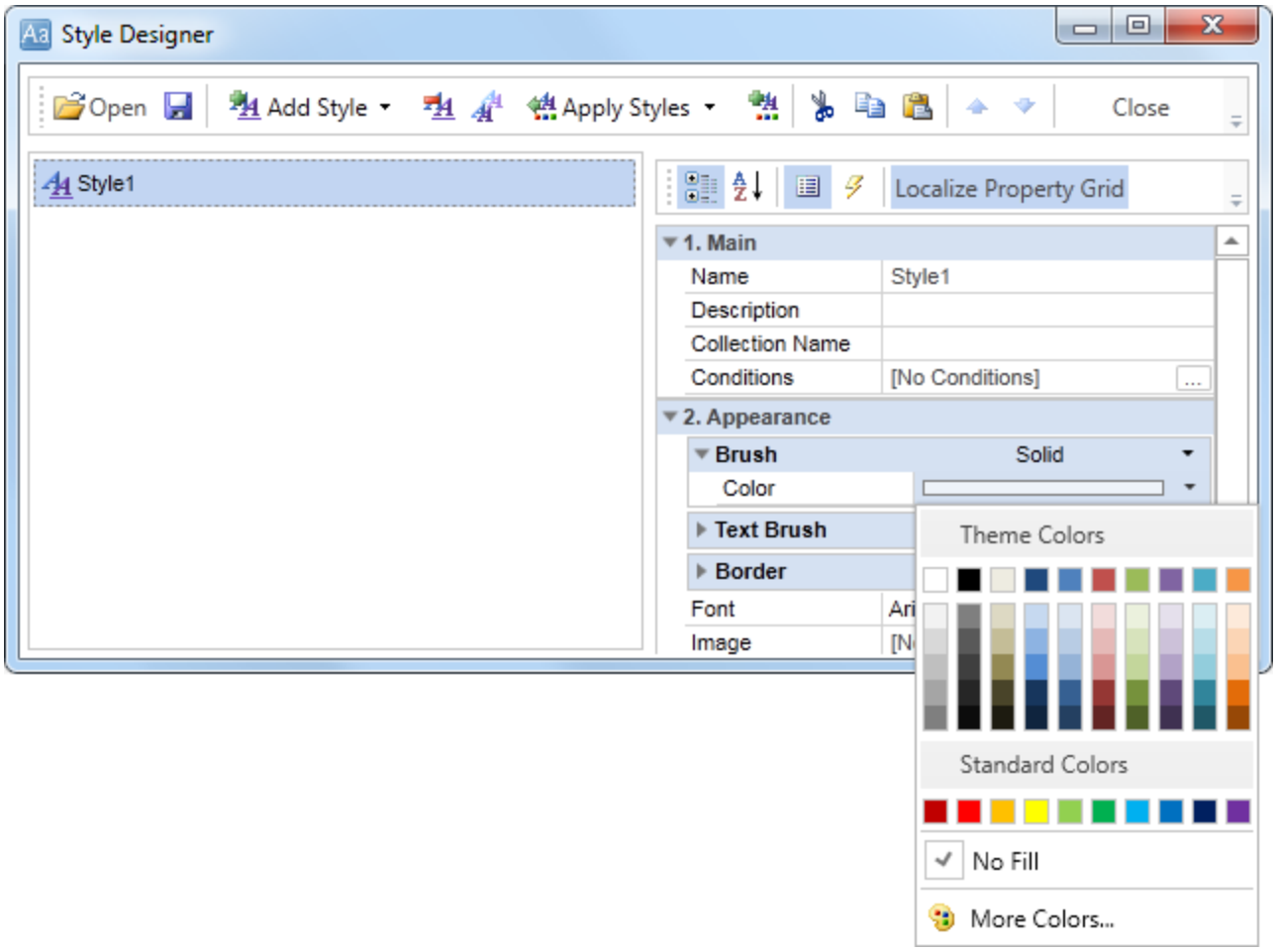


Click **Close**. Then a new value in the list of **Even style** and **Odd style** properties (a style of a list of odd and even rows) will appear.

4. To render the report, click the **Preview** button or invoke the **Viewer**, pressing **F5** or clicking the **Preview** menu item.

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Beverages
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Chang 3
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Tourtière 5
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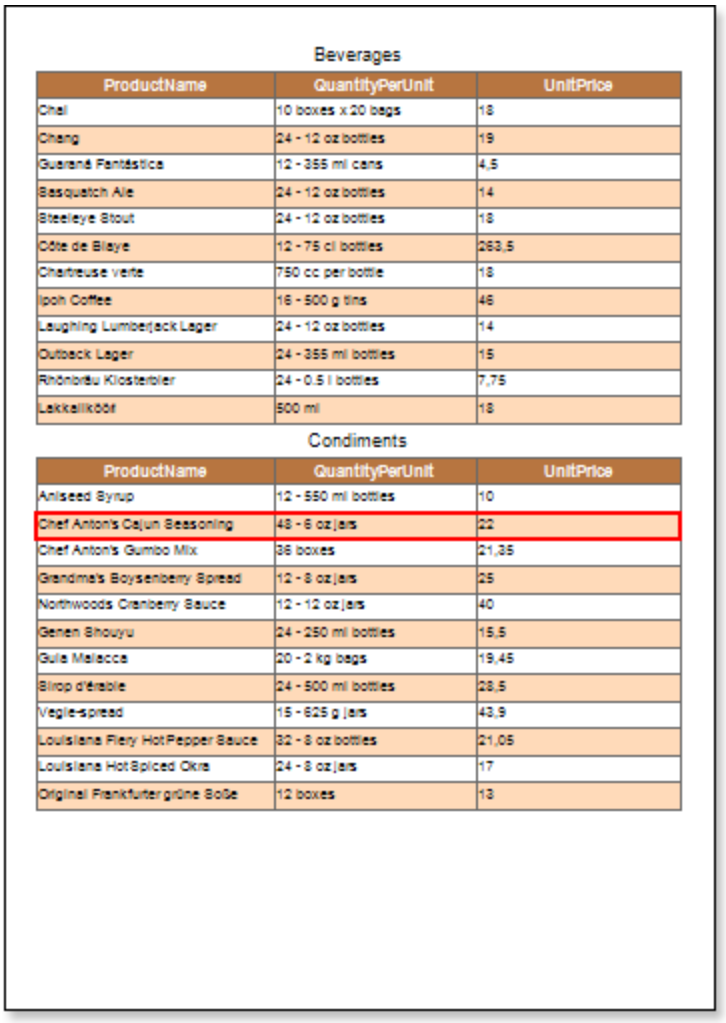

Beverages

| ProductName | QuantityPerUnit | UnitPrice |
|---|---|---|
| Chai | 10 boxes x 20 bags | 18 |
| Chang | 24 - 12 oz bottles | 19 |
| Guaraná Fantástica | 12 - 355 ml cans | 4,5 |
| Sasquatch Ale | 24 - 12 oz bottles | 14 |
| Steeleye Stout | 24 - 12 oz bottles | 18 |
| Côte de Blaye | 12 - 75 cl bottles | 263,5 |
| Chartreuse verte | 750 cc per bottle | 18 |
| Ipoh Coffee | 16 - 500 g tins | 46 |
| Laughing Lumberjack Lager | 24 - 12 oz bottles | 14 |
| Outback Lager | 24 - 355 ml bottles | 15 |
| Rhönbräu Klosterbier | 24 - 0.5 l bottles | 7,75 |
| Lakkalikööri | 500 ml | 18 |

Condiments

| ProductName | QuantityPerUnit | UnitPrice |
|---|---|---|
| Aniseed Syrup | 12 - 550 ml bottles | 10 |
| Chef Anton's Cajun Seasoning | 48 - 6 oz jars | 22 |
| Chef Anton's Gumbo Mix | 36 boxes | 21,35 |
| Grandma's Boysenberry Spread | 12 - 8 oz jars | 25 |
| Northwoods Cranberry Sauce | 12 - 12 oz jars | 40 |
| Genen Shouyu | 24 - 250 ml bottles | 15,5 |
| Gula Malacca | 20 - 2 kg bags | 19,45 |
| Sirop d'érable | 24 - 500 ml bottles | 28,5 |
| Vegie-spread | 15 - 625 g jars | 43,9 |
| Louisiana Fiery Hot Pepper Sauce | 32 - 8 oz bottles | 21,05 |
| Louisiana Hot Spiced Okra | 24 - 8 oz jars | 17 |
| Original Frankfurter grüne Soße | 12 boxes | 13 |

## 4.30 Invoice Report

The invoice is most often used in accounting for the tax (customs) control or in the international supply of goods. This document usually includes the cost of transportation, shipping operations, insurance, payment of export duties, as well as various taxes (fees), and more. If your activity requires constant creation of invoices, for optimization, time and cost savings, it is logical to assume that it is easier to create a document template. Using it, you change only the data, saving yourself from routine work to create the structure of the invoice and its design.
You can create templates and tools in many ways, but I want to help you save time in finding these resources. In this tutorial you will learn how to quickly create an invoice template, decorate it and get the finished document. This will take you some time. I will try as much as possible to describe in detail the process of creating such a report.

The product which is used in this tutorial is Stimulsoft Reports.Net which trial can be downloaded at http://www.stimulsoft.com/Downloads/StimulsoftReports.Net_2012.1_Trial.zip .
The database to this tutorial is delivered with the product installation. I also attached the video file which shows how to create a report.

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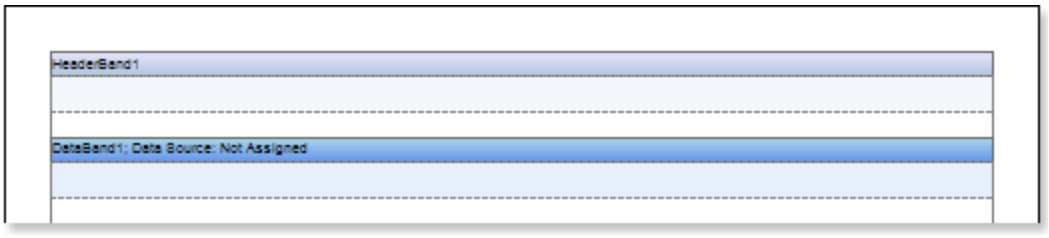
The ready invoice.mrt file is also attached to this article.

In order to create an invoice, you should do the following steps:

1. Run the designer;
2. Connect the data:
2.1. Create **New Connection**;
2.2. Create **New Data Source**;

3. Put the **DataBand** on the page of the report template;
4. Put the **HeaderBand** above the **DataBand**. The picture below shows an example of the report template with the bands on the page:




Edit the bands **DataBand** and **HeaderBand**:
5.1. Align them by height;
5.2. Set the properties of the **DataBand**. For example, set the **Can Break** property to **true**, if you want the band be broken;
5.3. Set the background color for the bands;
5.4. If necessary, set **Borders**;
5.5. Set the border color.

6. Specify the data source for the **DataBand** using the **Data Source** property from the object inspector:

7. Put text components in the **HeaderBand** with texts **Unit Name**, **Description**, **Qty**, **Item Price**, **Total**;
8. Put text components in the **DataBand** with expressions. Where the expression is a reference to the data field. Put text components with the expressions: **{Products.ProductName}**, **{Products.QuantityPerUnit}**, **{Products.UnitsInStock}**, **{Products.UnitPrice}**, and **{Products.UnitsInStock * Products.UnitPrice}**;
9. Edit **Text** and **TextBox**:
9.1. Drag the text components on the **DataBand** and **HeaderBand** to the appropriate places;
9.2. Set the font parameters: size, style and color;
9.3. Align text components by height and width;
9.4. Set the background of text components;
9.5. Align text in text components;
9.6. Set the properties of text components. For example to set the **Word Wrap** property to **true**;
9.7. If necessary, include **Borders** of text components;
9.8. Set the border color.

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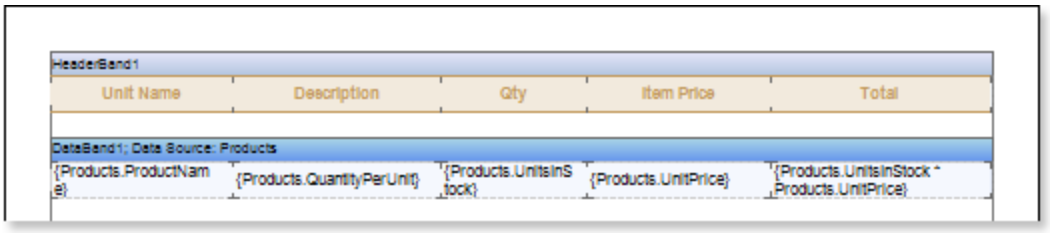
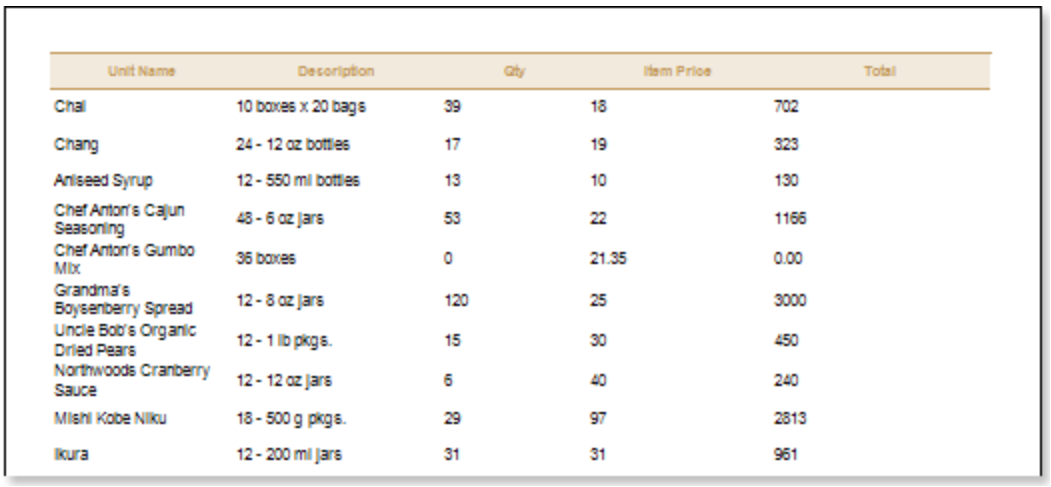
The picture below shows the report template:




10. Click on the **Preview** button or invoke the report viewer, using the shortcut key **F5** or the **Preview** item. After rendering a report, all references to the data fields will be replaced with data from the specified fields. That data will be taken sequentially from the data source that was specified for the given band. The number of copies of the **DataBand** in the rendered report will be equal to the number of rows in the data source. The picture below shows the rendered report:



| Unit Name | Description | Qty | Item Price | Total |
|---|---|---|---|---|
| Chai | 10 boxes x 20 bags | 39 | 18 | 702 |
| Chang | 24 - 12 oz bottles | 17 | 19 | 323 |
| Aniseed Syrup | 12 - 550 ml bottles | 13 | 10 | 130 |
| Chef Anton's Cajun Seasoning | 48 - 6 oz jars | 53 | 22 | 1166 |
| Chef Anton's Gumbo Mix | 36 boxes | 0 | 21.35 | 0.00 |
| Grandma's Boysenberry Spread | 12 - 8 oz jars | 120 | 25 | 3000 |
| Uncle Bob's Organic Dried Pears | 12 - 1 lb pkgs. | 15 | 30 | 450 |
| Northwoods Cranberry Sauce | 12 - 12 oz jars | 6 | 40 | 240 |
| Mishi Kobe Niku | 18 - 500 g pkgs. | 29 | 97 | 2813 |
| Ikura | 12 - 200 ml jars | 31 | 31 | 961 |

11. Go back to the report template;
12. Add the **FooterBand** on the report page and edit it;
13. Put text components in the band with the expression **Items per page: {cCount (DataBand1)}** and edit this text component;
14. Add **Rectangle**, so that the upper points are located on the **HeaderBand**, and the lower ones on the **FooterBand**;
15. Add cross-primitives, which start points are located at the top of the **HeaderBand**, and the end ones - on **FooterBand**. The picture below shows the report template with the **FooterBand**, rectangle and primitives:

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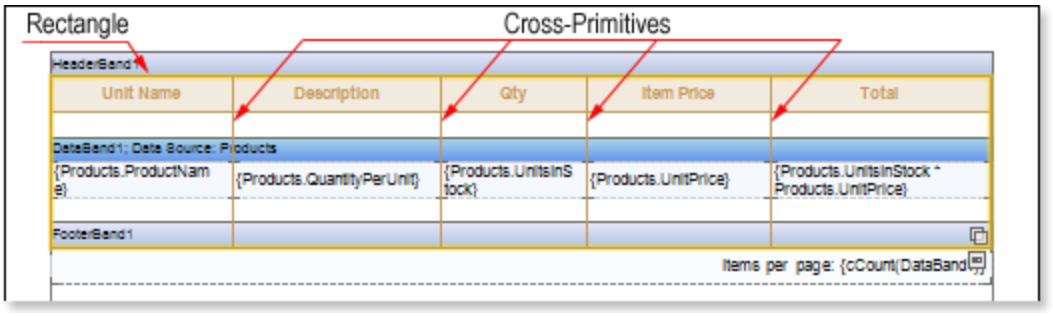
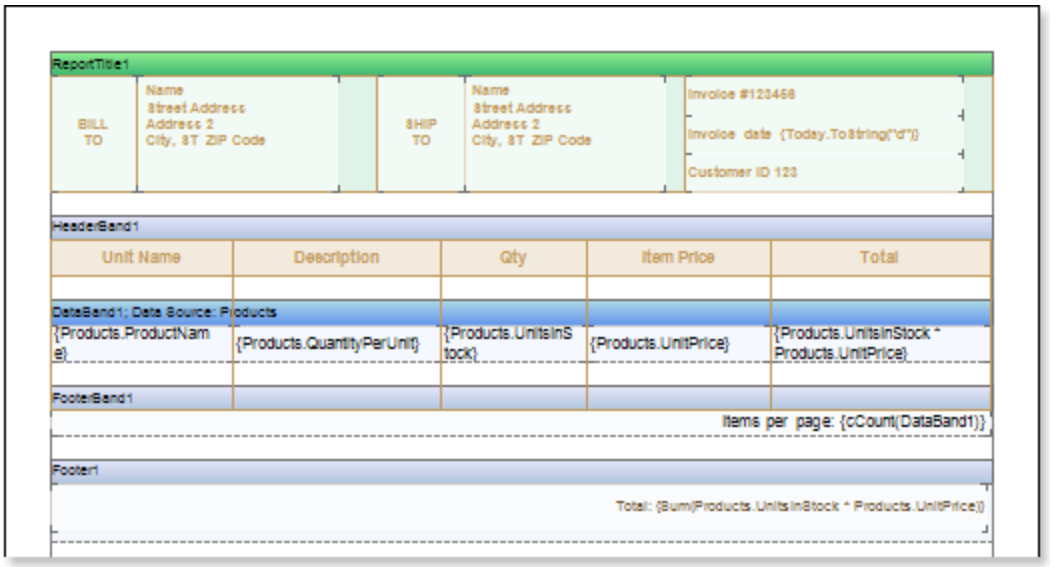



16. Add the **ReportTitleBand** to the report template and **FooterBand** and edit them;
17. Put a text component in the **FooterBand** with the expression **Total: {Sum (Products.UnitsInStock * Products.UnitPrice)}**;
18. Put a text components in the **ReportTitleBand** with expressions:
18.1. The first text component has the text **BILL TO**;
18.2. The second one indicates **Name Street Address Address 2 City, ST ZIP Code**;
18.3. The third component with the text **SHIP TO**;
18.4. In the fourth component the text is the same as in the second one **Name Street Address Address 2 City, ST ZIP Code**;
18.5. Put the text **Invoice # 123456** in the next component;
18.6. Put the expression **Invoice date {Today.ToString ("d")}** in the sixth component in this band;
18.7. And in the last component put **Customer ID 123**;
The picture below shows a report template:




19. Click on the **Preview** button or invoke the report viewer, using the shortcut key **F5** or the **Preview** item. After rendering a report, all references to the data fields will be replaced with data from the specified fields. That data will be taken sequentially from the data source that was specified for the given band. The number of copies of the **DataBand** in the rendered report will be equal to the number of rows in the data source. The picture shows a report with the report header and footer:

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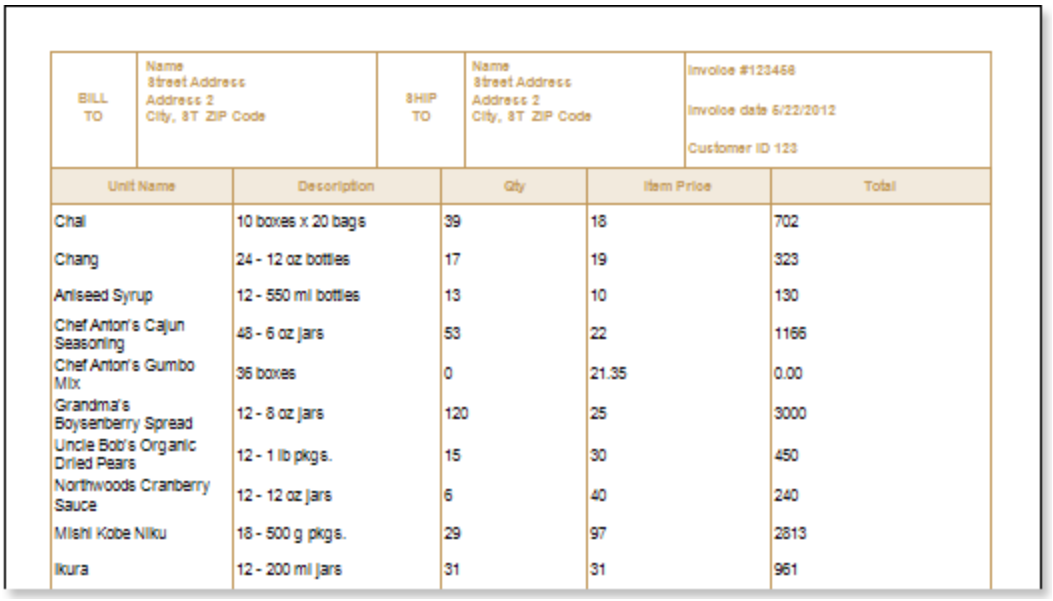


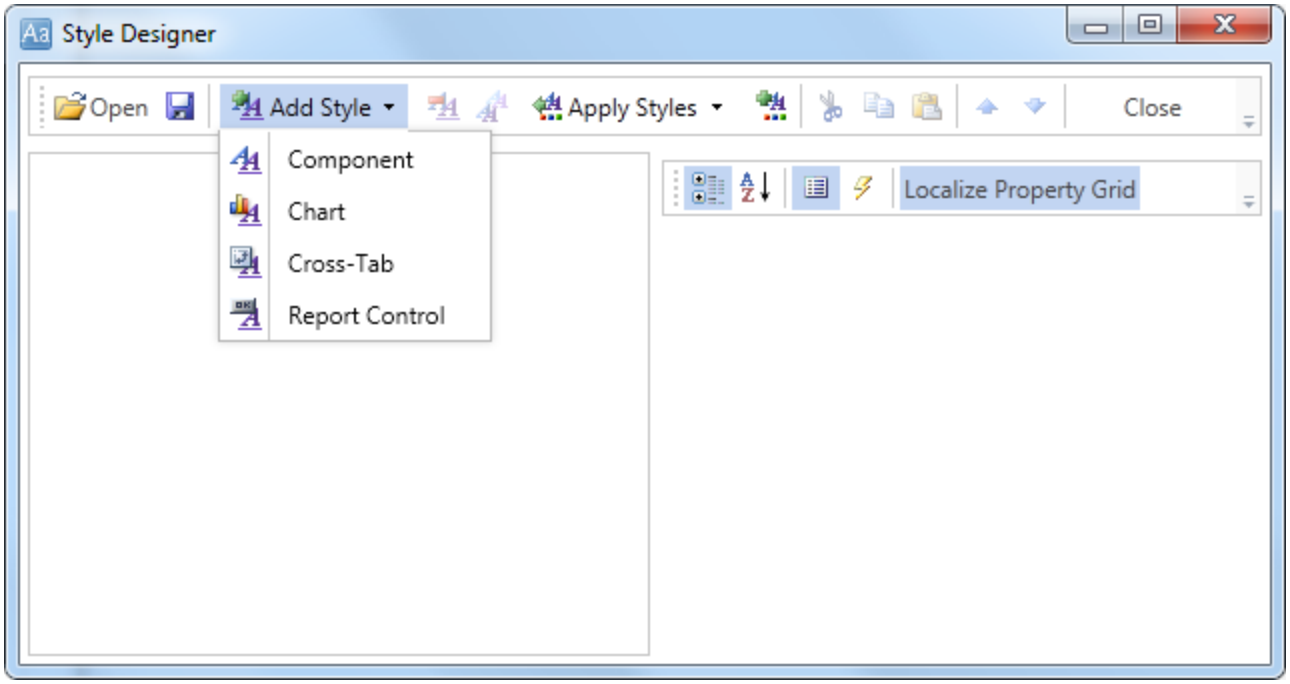
| BILL TO | Name<br>Street Address<br>Address 2<br>City, ST ZIP Code | SHIP TO | Name<br>Street Address<br>Address 2<br>City, ST ZIP Code | Invoice #123456<br>Invoice date 6/22/2012<br>Customer ID 123 |
|---|---|---|---|---|

| Unit Name | Description | Qty | Item Price | Total |
|---|---|---|---|---|
| Chai | 10 boxes x 20 bags | 39 | 18 | 702 |
| Chang | 24 - 12 oz bottles | 17 | 19 | 323 |
| Aniseed Syrup | 12 - 550 ml bottles | 13 | 10 | 130 |
| Chef Anton's Cajun Seasoning | 48 - 6 oz jars | 53 | 22 | 1166 |
| Chef Anton's Gumbo Mix | 36 boxes | 0 | 21.35 | 0.00 |
| Grandma's Boysenberry Spread | 12 - 8 oz jars | 120 | 25 | 3000 |
| Uncle Bob's Organic Dried Pears | 12 - 1 lb pkgs. | 15 | 30 | 450 |
| Northwoods Cranberry Sauce | 12 - 12 oz jars | 6 | 40 | 240 |
| Mishi Kobe Niku | 18 - 500 g pkgs. | 29 | 97 | 2813 |
| Ikura | 12 - 200 ml jars | 31 | 31 | 961 |

**Adding styles**

1. Go back to the report template;
2. Call the **Style Designer**;

The picture below shows the dialog **Styles Designer**:




Click the **Add Style** button to start creating a style. Select **Component** from the drop down list. Set the **Brush.Color** property to change the background color of a row. The picture below shows a sample of the **Style Designer** with the list of values of the **Brush.Color** property

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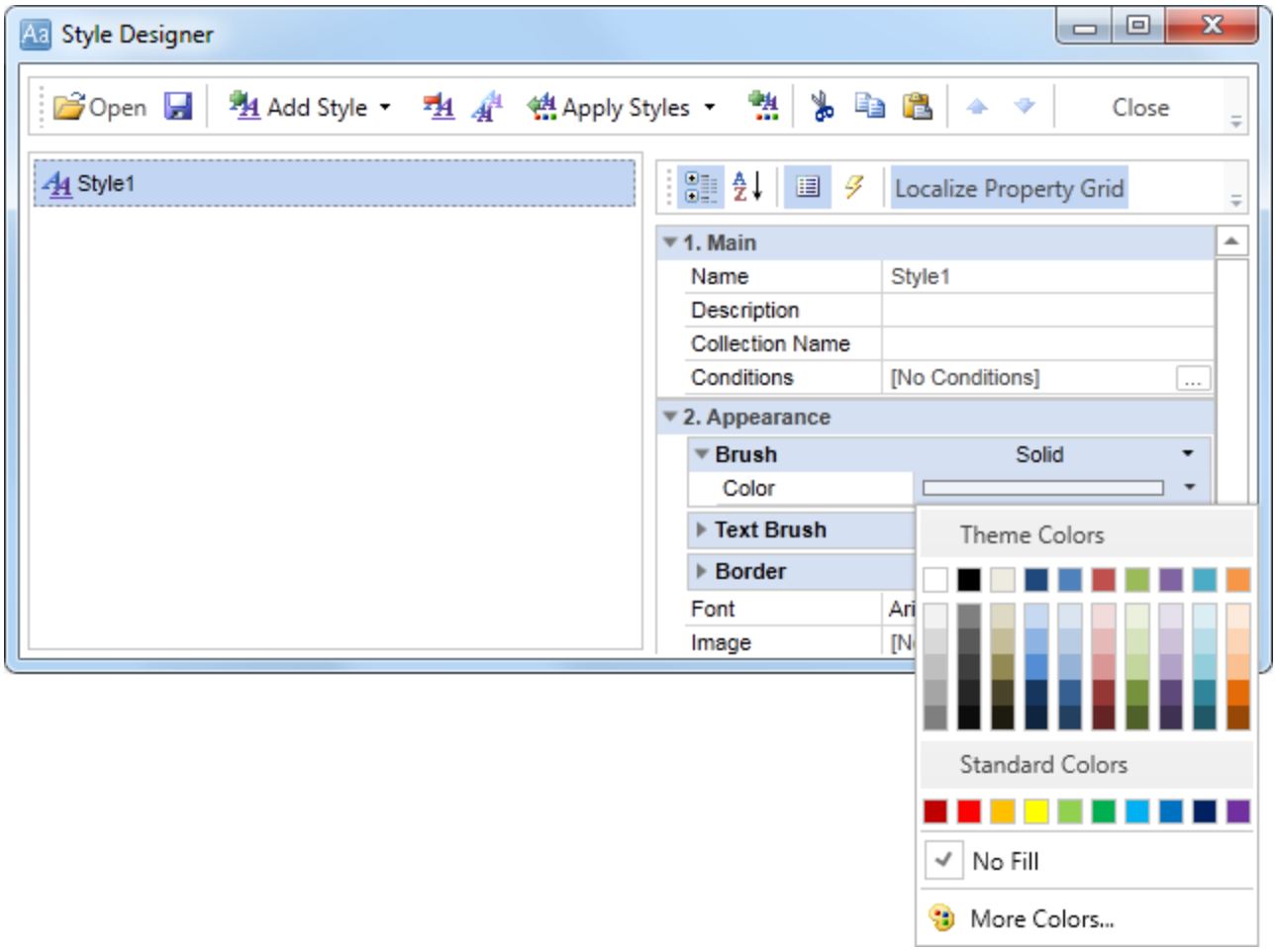


Press the **Close** button when the property is set. After that, in the list of values of properties **Even style** and **Odd style** the new values will appear, i.e. the new style of even/odd lines, respectively.

4. Render a report by clicking on the **Preview** tab or call the report **Viewer** using a hot key **F5** or by selecting the menu item **Preview**. The picture below shows the rendered report with the invoice:

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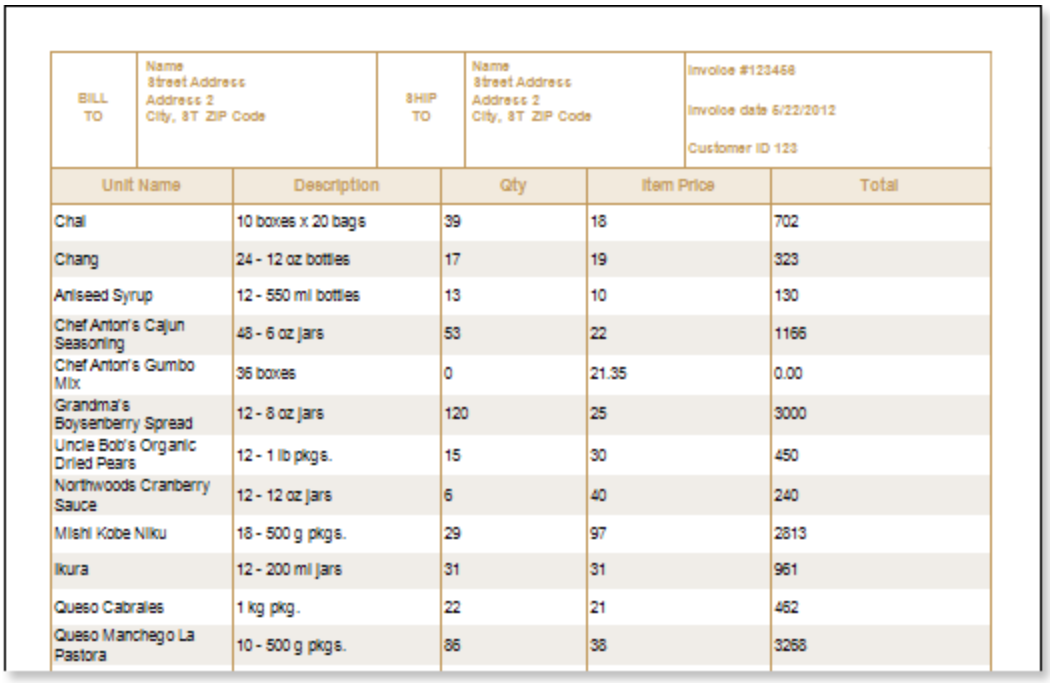

| BILL TO | Name<br>Street Address<br>Address 2<br>City, ST ZIP Code | SHIP TO | Name<br>Street Address<br>Address 2<br>City, ST ZIP Code | Invoice #123456<br>Invoice date 6/22/2012<br>Customer ID 123 |
|---|---|---|---|---|

| Unit Name | Description | Qty | Item Price | Total |
|---|---|---|---|---|
| Chai | 10 boxes x 20 bags | 39 | 18 | 702 |
| Chang | 24 - 12 oz bottles | 17 | 19 | 323 |
| Aniseed Syrup | 12 - 550 ml bottles | 13 | 10 | 130 |
| Chef Anton's Cajun Seasoning | 48 - 6 oz jars | 53 | 22 | 1166 |
| Chef Anton's Gumbo Mix | 36 boxes | 0 | 21.35 | 0.00 |
| Grandma's Boysenberry Spread | 12 - 8 oz jars | 120 | 25 | 3000 |
| Uncle Bob's Organic Dried Pears | 12 - 1 lb pkgs. | 15 | 30 | 450 |
| Northwoods Cranberry Sauce | 12 - 12 oz jars | 6 | 40 | 240 |
| Mishi Kobe Niku | 18 - 500 g pkgs. | 29 | 97 | 2813 |
| Ikura | 12 - 200 ml jars | 31 | 31 | 961 |
| Queso Cabrales | 1 kg pkg. | 22 | 21 | 462 |
| Queso Manchego La Pastora | 10 - 500 g pkgs. | 86 | 38 | 3268 |

5. Go back to the report template;
6. Save the report template, for example, as **Invoice.mrt**.

The invoice, can be printed, saved to any of the available file formats, or sent via Email. The picture below shows a list of file formats available for saving or sending reports via Email:

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## 4.31 Invoice Report With Parameters

Do the following steps in order to create an invoice with parameters:

1. Run the report designer;
2. Open the saved report template and render a report. The picture below shows the rendered report with the invoice:

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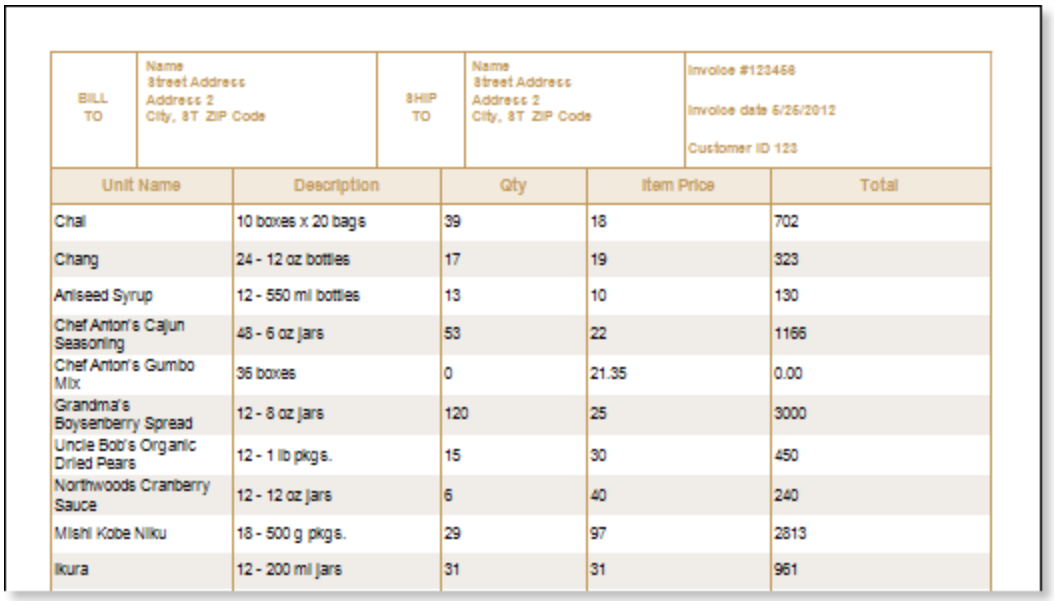
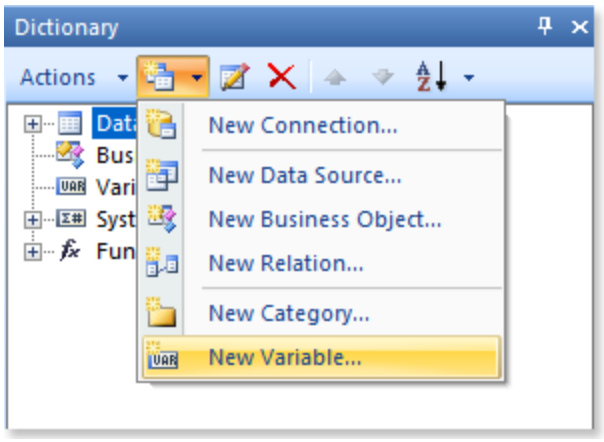


| BILL TO | Name<br>Street Address<br>Address 2<br>City, ST ZIP Code | SHIP TO | Name<br>Street Address<br>Address 2<br>City, ST ZIP Code | Invoice #123456<br>Invoice date 5/26/2012<br>Customer ID 123 |
|---|---|---|---|---|

| Unit Name | Description | Qty | Item Price | Total |
|---|---|---|---|---|
| Chai | 10 boxes x 20 bags | 39 | 18 | 702 |
| Chang | 24 - 12 oz bottles | 17 | 19 | 323 |
| Aniseed Syrup | 12 - 550 ml bottles | 13 | 10 | 130 |
| Chef Anton's Cajun Seasoning | 48 - 6 oz jars | 53 | 22 | 1166 |
| Chef Anton's Gumbo Mix | 36 boxes | 0 | 21.35 | 0.00 |
| Grandma's Boysenberry Spread | 12 - 8 oz jars | 120 | 25 | 3000 |
| Uncle Bob's Organic Dried Pears | 12 - 1 lb pkgs. | 15 | 30 | 450 |
| Northwoods Cranberry Sauce | 12 - 12 oz jars | 6 | 40 | 240 |
| Mishi Kobe Niku | 18 - 500 g pkgs. | 29 | 97 | 2813 |
| Ikura | 12 - 200 ml jars | 31 | 31 | 961 |

Pay attention to the report header. As can be seen from the picture above, information about payments and delivery are not specified. How to make it so you can easily specify these details? The constant editing of text components in the report template is not an option, but using the parameters in the report is quick and easy. Especially if there are more recipients of your invoices. So, in order to add parameters to the report, follow these steps:

3. Go back to the report template;
4. Add parameters to the report template. The parameters in the report are implemented using variables (a variable may have different values). To add a variable, in the tab **Dictionary** -> the menu item **New Item** -> select **New Variable...**. The picture below shows the **New Item**:




Details **BILL TO** and **SHIP TO**, by definition of fields (name, street, city, zipcode) are the same, so when you create variables, there could be confusion. To avoid this, the variables can be created in different subcategories. So, to avoid this, create a sub-category of variables, which are called **BILL TO** and **SHIP TO**. For this purpose, in the context menu of the category **Variables**, click **New Category...**:

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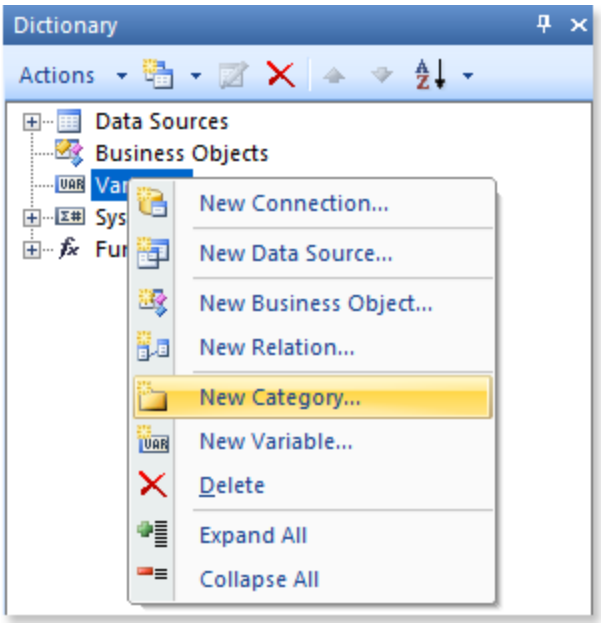


Then, in the box of the **New Category** you should specify a name for the category (BILL TO and SHIP TO). After that, we will create the variables in the category **BILL TO**. In principle, there is no difference where to create a variable, because it is always possible to move it to the appropriate subcategory. Yet, to save time, get used immediately to create the correct location. So, select a subcategory created by BILL TO command and call the new variable (New Variable) from the context menu or menu item New (New Item). The picture below presents a window to create a new variable:

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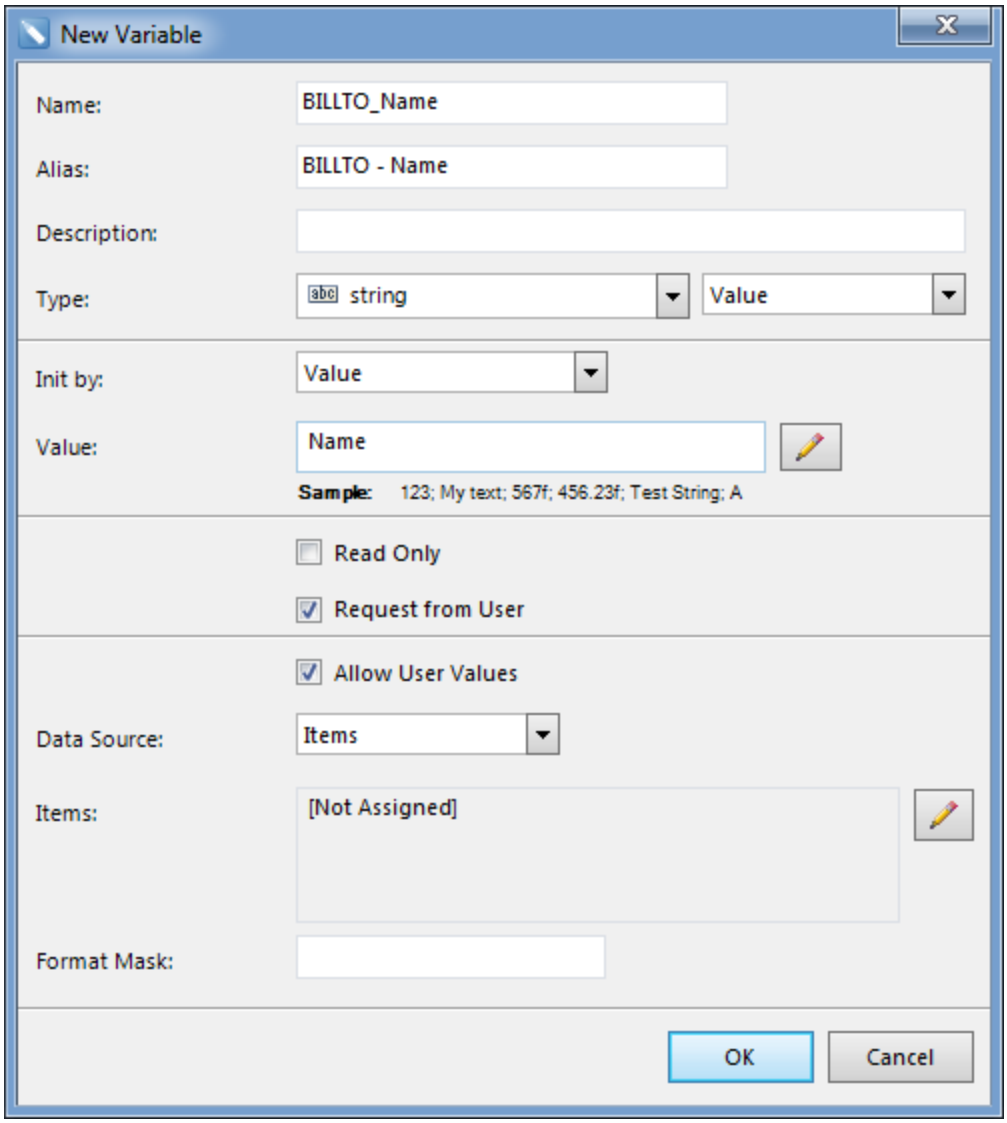


Define the parameters created by the variable:
5.1. Change the name (Name) and Nick (Alias) variable, specify the description (Description), if necessary;

5.2. Choose the type of stored value (in this case string) and the type of the variable (we will approach the variable type value (Value)). Here is a very important step, which we have determined that our variable will store a single value (rather than a list of values or Range), and this value will be stored in a string type.
5.3. Set the default value. In our example, set the value of Name;
5.4. Get the answer options are installing from a user (Request from User), and use user values (Allow User Values). In this step, we allow the user to participate, as well as change the value stored in variable;
5.5. Press Ok.

In order to use this variable in the report, you must provide a link to it - {variable name}. In this case, we indicate in the text component {BILLTO_Name}. The picture below predstalen invoice template with a variable:

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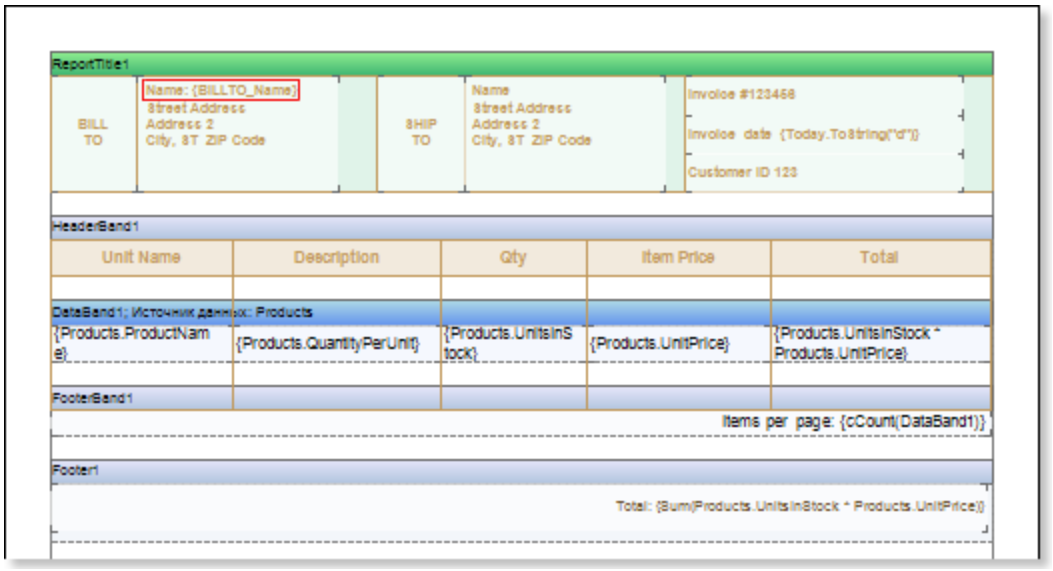


Render a report to check how works the newly created key in the final report. Click on the Preview button or bring up the Viewer, using the shortcut key F5 or the menu Preview. After building a report, all references to data sources will be replaced with data from these fields. With that data will be taken sequentially from a data source that was specified for a given band. The number of copies of the band Data in the rendered report will be equal to the number of rows in the data source. The picture below before your report with a parameter:

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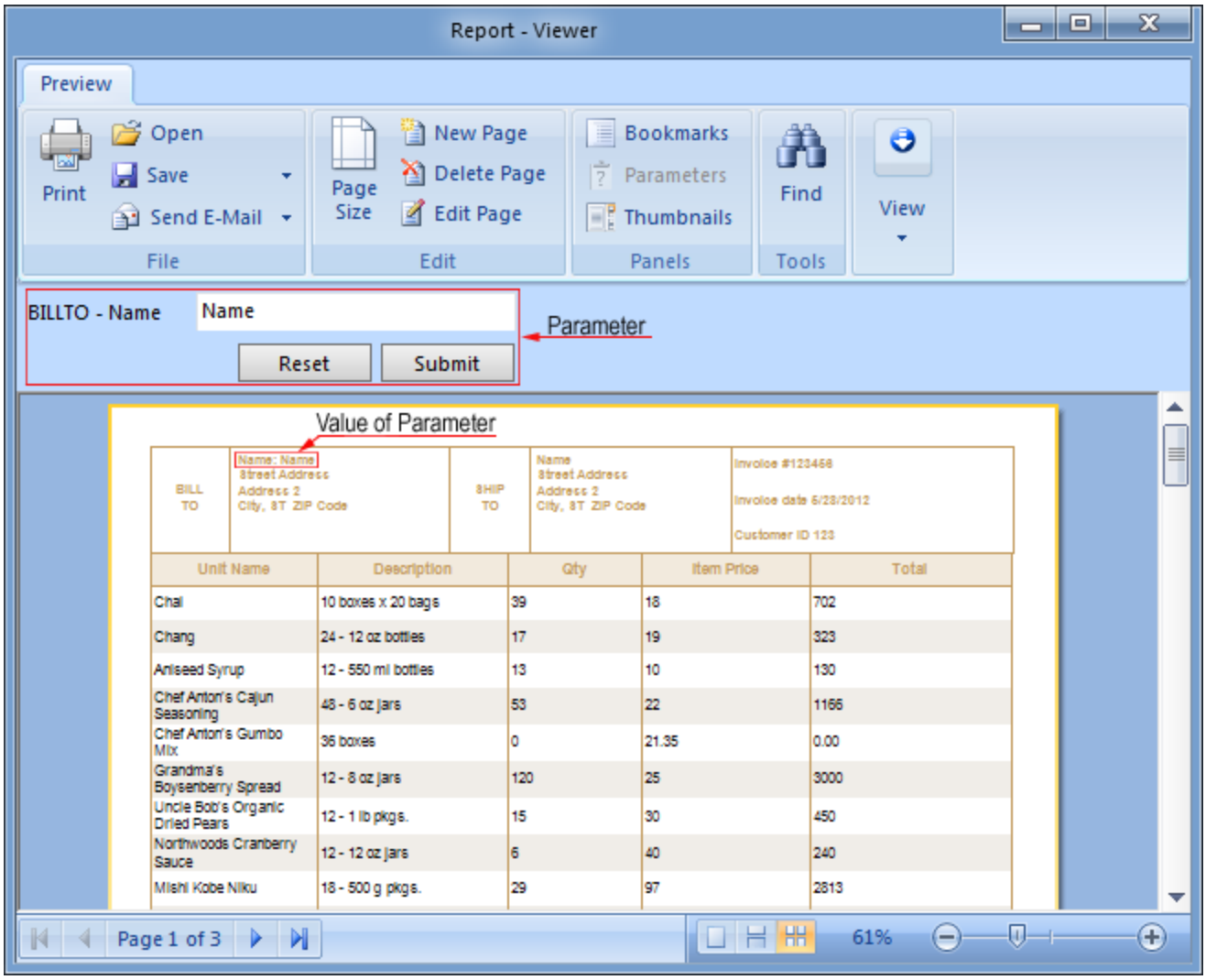


As can be seen from the picture, the report shows the specified field values of the parameter (in this case, Name). Note that in the first set of values stored in the variable value by default. Now change the value and click the Apply button (Submit). In the picture below a report with the modified parameter value:

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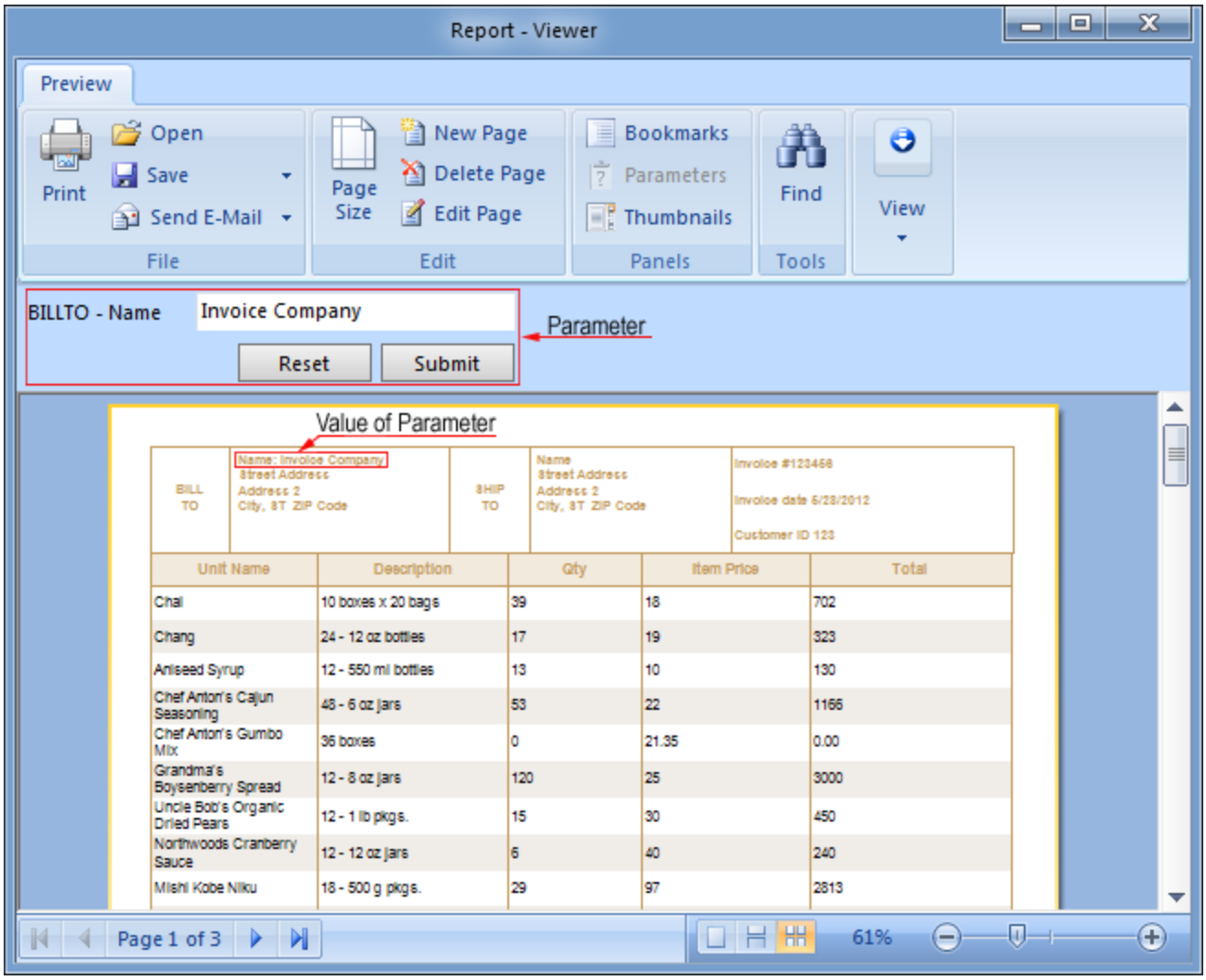


Add options for other fields. To do this:

Back to the template;
Create a similar variables in the sub-BILLTO named BILLTO_Street_Address, BILLTO_Address_2, BILLTO_City-ST-ZIP_Code;
In a similar sub-SHIPTO variables, with the names of SHIPTO_Name, SHIPTO_Street_Address, SHIPTO_Address_2, SHIPTO_City-ST-ZIP_Code;
Use these variables to the report, ie They point to the links in the template;
We construct a report to check how the newly created key in the final report. Click on the Preview button or bring up the Viewer, using the shortcut key F5 or the menu Preview. After building a report, all references to data sources will be replaced with data from these fields. With that data will be taken sequentially from a data source that was specified for a given band. The number of copies of band Data in the constructed report will be equal to the number of rows in the data source. The picture below before the report prepared with the following parameters:

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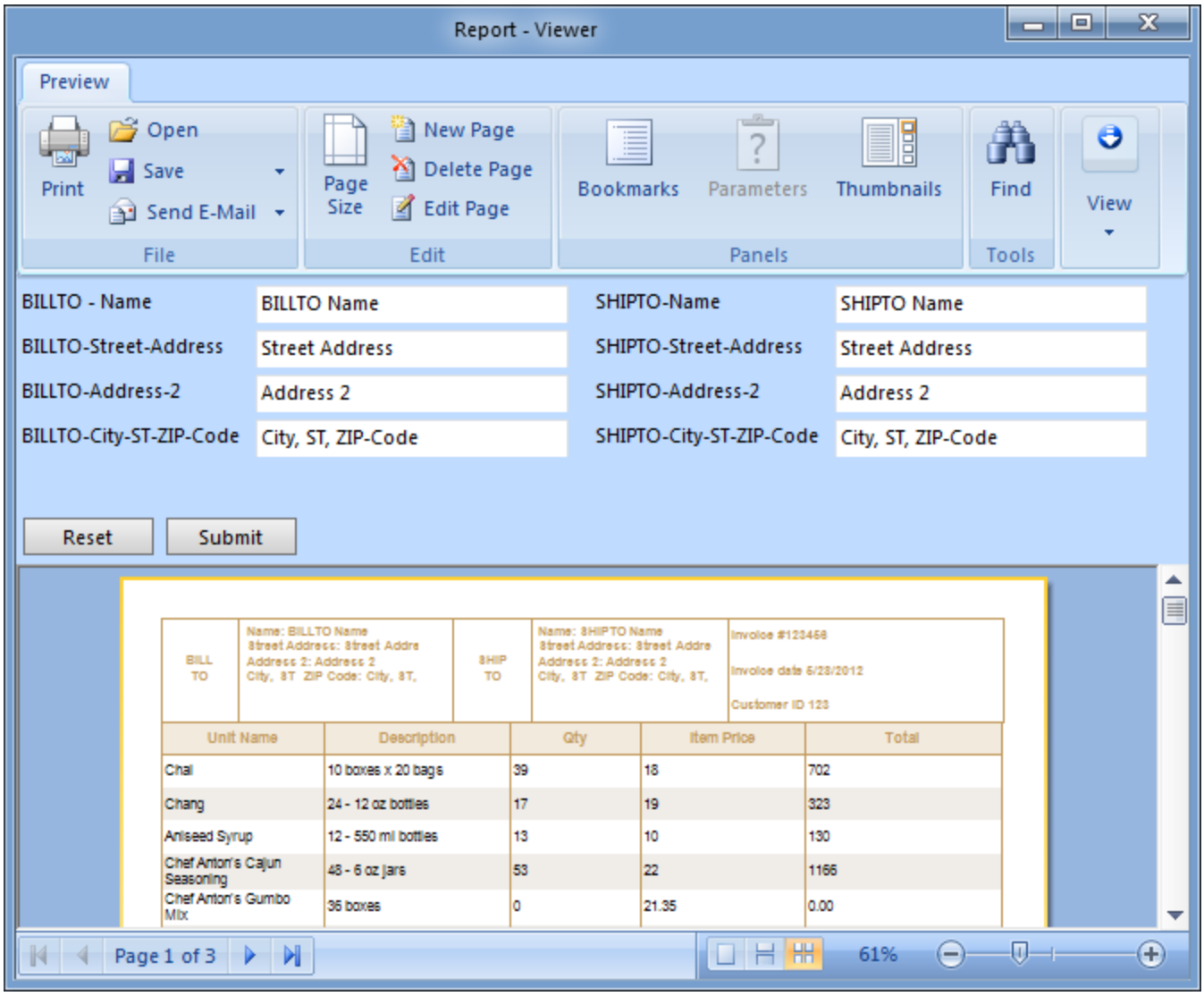


Now, in order to prepare an invoice with the required details and BILLTO SHIPTO, no need to alter permanently a template. Enough to simply specify the details and click the Apply button (Submit). Reset Button (Reset) resets the values stored in a variable and sets the value stored by default. In these two articles, I showed you how to use report generator Stimulsoft can facilitate their work in creating invoices. And also learned how to use this tool in a few steps and get a hard-structured, well-designed, dynamic report. I would like to add that this is only a small part of the potential reporting tool Stimulsoft. Stimulsoft Start learning today and you'll wonder how you can quickly and easily create reports. And I'll be sure to write articles to help you solve your questions.

# 5 Report Internals

This section describes the internal components and features of Stimulsoft Reports, including Expressions, Appearance, Text Formatting, Barcodes, Watermarks and more.

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# 5.1 Expressions

Expressions are a key part of Stimulsoft Reports - without them it would not be possible to produce any reports at all. An expression is a combination of one or more of the following:

- Text;
- Mathematical and Logical operators;
- Constants;
- Functions;
- Field names;
- Controls;
- Properties.

Stimulsoft Reports processes the expressions defined in a report in order to calculate the value to be displayed or printed for each one. This value is saved and can be used in further calculations when generating the report output.

The most common expressions used in the report generator are text expressions. These expressions are used to define any text displayed or printed in the report that is not the subject of any calculation such as a text heading. Text expressions are always converted into strings.

## 5.1.1 Text Expressions

The simplest expressions are Text expressions. For example:

```
MyText
```

```
12345
```

```
Test
```

All three expressions above consist of one string and there are no calculations - the expression will be printed in the report exactly as it has been defined. Such expressions are typically used to indicate simple string constants, column names, reports, links etc.

## 5.1.2 Calculating Values in Expressions

An expression can contain many different types of variable as well as functions and field values from databases. These various parts can be combined to calculate a value to be printed or displayed within a report.

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**Using Code in an Expression**
When calculating a value within an expression you may also include code written in the programming language of a report. Curly braces (the "{" and "}" symbols) are used to separate code item from other text. The opening brace symbol "{" indicates the beginning of a calculation. The closing brace symbol "}" indicates the end of a calculation. The code between symbols is calculated and the value included in the result of calculation. In text expressions the result of the calculation is automatically converted into a string. For example, if you enter the following expression:

```
Value = {1 + 2}
```

then after calculation the result appearing in the report will be:

```
Value = 3
```

**Multiple Code Insertions**
When using calculations an unlimited number of code insertions are allowed in any one expression. For example, if you enter the following expression:

```
ValueA = {1 + 2}, ValueB = {2 + 3}
```

then after calculation the result appearing in the report will be:

```
ValueA = 3, ValueB = 5
```

**Nested Code Insertions**
When you perform calculations in an expression the nesting of code sections is not allowed. For example, the following expression is not correct and will cause the calculation to fail:

```
Value = {1 + 2 + {2 + 3}}
```

**Important**: Code nesting is not allowed when making calculations in expressions.

### 5.1.3 Multi-line Expressions

It is possible for a single expression to output multiple lines of text within a report. To create a multi-line expression simply insert a line feed before any new line. You can do this by simply pressing the Enter key at the appropriate place in the code editor. There is no limit to the number of lines that can

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be included in an expression. For example, if you enter the following expression:

```
Value:
{1+2}
```

then after calculation the result appearing in the report will be:

```
Value:
3
```

In other words, the text output will contain two lines.

**Note**: An expression may contain any number of lines.

Using Code in Multi Line Expressions
Multi line expressions do not have limitations on using code to calculate values other than those for single line expressions.

### 5.1.4 Using Dictionary Variables

You can create variables in the designer data dictionary which can then be used in expressions. When you specify the name of a variable in the expression the value of the variable will be included in the report. The syntax is simply the name of the variable surrounded by curly braces. For example if you set the value of the variable to 5 and you enter the following expression:

```
Value = {MyVariable}
```

then after calculation the result appearing in the report will be:

```
Value = 5
```

**Calculating with Variables**
Variables can also be used in calculations. For example if the value of **MyVariable** is 15 and you enter the following expression:

```
Value = {MyVariable + 10}
```

then after calculation the result appearing in the report will be:

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```
Value = 25
```

**Important:** If the report language is **C#** then variable names are case sensitive. If the report language is **VB.Net** then variable names are not case sensitive.

### 5.1.5 Using Data Fields

Values from data sources can be used in expressions. To reference a field from the data source you must provide a string representation of the field. The syntax of the reference is simple - you give the name of the data source and the field name separated by a decimal point or full stop character, surrounded by curly braces:

```
{DataSource.Column}
```

For example, if you have an entry in the customers table with the company name field set to "The Big Company" and you enter the following expression:

```
Company Name: {Customers.CompanyName}
```

then after calculation the result appearing in the report will be:

```
Company Name: The Big Company
```

**Note**: In order to avoid having to create this sort of expression manually you can use drag and drop from the data dictionary directly to the page of a report or within the expression editor to insert the necessary information automatically and with the correct syntax.

**Parent Relationships**
If the data source has a **parent** relationship with other data sources you can directly reference fields from the **parent** data source. The syntax of the reference is similar to the examples already given - you give the name of the data source, then the relation name, and then the field name each separated by a decimal point or full stop character, and the whole thing surrounded by curly braces. For example:

```
{Datasource.Relation.Field}
```

Assuming that you have a set of information like this:

- **Products** is a name of a data source;

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- **ParentCategories** is a name of relation, with what two data sources are related. In this case, two data sources are related:
- **Products** is a list of products, and **Categories** is a list of categories of these products.
- **CategoryName** is a column name in the **Categories** data source.

if you enter the following expression:

```
{Products.ParentCategories.CategoryName}
```

then after calculation the result appearing in the report will be the name of a category for a product.

There are no limits on the number of relationships you can use in Stimulsoft Reports. Therefore a column can be called through two or three or even more relationships. For example, Assuming that you have a set of information like this:

- **OrderDetails** is a name of a data source;
- **ParentProducts** is a name of relations between **OrdersDetails** and **Products** data sources;
- **ParentCategories**. is a name of relation between **Products** and **Categories** data sources;
- **CategoryName** is a field in the **Categories** data source.

if you enter the following expression:

```
{OrderDetails.ParentProducts.ParentCategories.CategoryName}
```

then after calculation the result appearing in the report will still be the name of a category for a product butthe value of the **CategoryName** field has been obtained using relationships and bypassing the **OrderDetails** data source to get to the **Categories** data source. No direct call to the **Categories** data source has been used

**Important**: If the report language is **C#** then names are case sensitive. If the report language is VB. Net then names are not case sensitive.

It should be remembered that all the values in data sources are typed. This means that all data items are dynamically converted to the type that is specified in the options column which helps to accelerate the development of reports. However, if you need to get data from a column without conversion you will need to specify the data source directly. For example, in C#:

```
{Products["ProductName"]}
```

This expression will return data from the **Products** data source "as is" without conversion. The example below shows the same expression for **VB.Net**:

```
{Products.Item("ProductName")}
```

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### 5.1.6 Using Component Properties

When creating an expressions you can use the properties of any component contained within a report.

**Syntax**
The syntax is the same whether the report language is **C#** or **VB.NET**. You simply enterthe name of the component and the property name separated by a decimal point or full stop character, surrounded by curly braces:

```
{Component.Property}
```

**Important**: If the report language is **C#** then names are case sensitive. If the report language is VB. NET then names are not case sensitive.

**For example**, to display the name of a component called **MyComponent** you would enter the expression:

```
{MyComponent.Name}
```

If you wish to access a calculated value from within a component you should use the property that contains the result you require. For example, if the component has ahyperlink value which calculates a hyperlink from the other component properties you would access it by entering the expression:

```
{MyComponent.HyperlinkValue}
```

You can use component properties in calculations should this be necessary. For example, the following would display the area taken up by the component:

```
{MyComponent.Width*MyComponent.Height}
```

### 5.1.7 Using Functions in Expressions

**Built In Functions**
Stimulsoft Reports has a large number of built in functions available for you to use. You can access these functions directly from the data dictionary and within the Expression Editor. Examples of built in functions and their usage would be:

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```
{Trim(MyString)}
```

or

```
{Trim(MyDataSource, MyDataColumn)}
```

In each case the use of the **Trim** function removes leading and trailing spaces from the result shown in the report.

**.NET Framework Methods**
In addition to the built in functions you can use any available .Net Framework methods. For string expressions you could use any of the following examples:

```
{MyString.Trim()} // Removes leading and trailing spaces
```

```
{"Test".ToUpper()} // Converts the value to upper case "TEST"
```

```
{MyString.Length} // Returns the length of the string - if the value of MyString is "Test" then the method will return 4
```

For numerical expressions you could use any of the following examples:

```
{Math.Round(MyValue, 2)} // Rounds the value to two decimal places
```

```
{Math.Sqrt(MyValue)} // Returns the square root of MyValue
```

```
{MyValue.ToString() + " times"} // Converts the number to a string and adds the word "times" -
                                // if MyValue is 5 this returns "5 times"
```

There are no limits to the number of Framework methods you can access - if they are available within **.NET** for the type you are using in a report you can use them without restriction.

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## 5.1.8 Conditional Expressions

Conditional Expressions are not allowed in Stimulsoft Reports by default. However, there are two ways force conditional behaviour should you find it necessary to do so:

**The IIF Function**
Firstly you can use the built-in **IIF** function which you can insert from the data dictionary. The function uses the following syntax:

```
{IIF(Condition, Value1, Value2}
```

This evaluates **Condition**, and if the **Condition** returns **true**, then the expression will return **Value1**. If it returns **false**, then it will return **Value2**. For example, if you enter the following expression:

```
Number of Stores: {Store.Count > 0 ? Store.Count : "None"}
```

then if the value of Store.Count is 10 after calculation the result appearing in the report will be:

```
Number of Stores: 10
```

If the value of Store.Count is 0 after calculation the result appearing in the report will be:

```
Number of Stores: None
```

**The C# Ternary Operator**
If you are using **C#** as your report languageit is also possible to use the ternary operator. The syntax for the ternary operator is as follows:

```
{Condition ? Value1 : Value2}
```

In exactly the same way as the IIF function, if **Condition** evaluates to **true**, then the expression will return **Value1**. If **false**, then it will return **Value2**.

## 5.1.9 Using Aliases in Expressions

To make it easier to understand expressions in a report you can use aliases instead of explicitly specifying the variable or data source and column details. For example, if you have a variable in the

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data dictionary called "MyVariable" and you have set its alias to "my best variable" you can reference that variable directly by Name or by Alias.

To use the variable by name you would create an expression like this:

```
{MyVariable}
```

To use the variable by alias you would create an expression like this:

```
{[my best variable]}
```

**Syntax - Variables**
If you use spaces, punctuation, or characters within an alias that are not permitted under C# or VB.Net then you MUST enclose the string representation of the alias in square brackets []. If no such characters are used then the square brackets are optional.

For example, if the alias was **"MyBestVariable"** then the expressioncan be written without brackets:

```
{MyBestVariable}
```

Otherwise you MUST enclose the variable in square brackets. Examples of valid alias usage:

```
{Variable1}

{VariableAndValue}

{[Variable and Value]}

{[Variable and Value]}

{[Variable&Values]}

{[Variable-First]}
```

Just for extra clarification, examples of some **INVALID** alias usage

```
{Variable and Value}  // spaces in the name cause this to fail

{Variable&Values}  // reserved character causes this to fail
```

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**Syntax - Data**
The same rule is used and when creating the names of data sources and columns. But there is one exception. When referring to the data column, only a part with incorrect characters for identifier should be bracketed.For example:

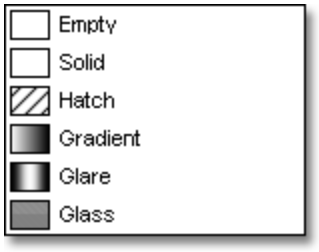
```
{DataSource.[Data Column]}

{[Data-Source].DataColumn}

{[Data=Source].[Data=Column]}
```

## 5.2 Appearance

Stimulsoft Reports offers many ways to control the appearance of your reports. These include text brushes, brushes to fill background, font types, component borders, and horizontal and vertical alignment of the contents of components. Styles can be used to simplify setting the appearance of your reports and to standardize the look and feel of them.

### 5.2.1 Background Brushes

Brushes are used to fill a background, and to draw a text within a report. Brushes have several styles and colors. To change the background color and appearance of a component use the **Brush** property within the Object Inspector.




Six types of Brushes are available within Stimulsoft Reports:

- **Empty**;
- **Solid**;
- **Hatch**;
- **Gradient**;
- **Glare**;
- **Glass**.

Below are representations of the results all six Brush types:

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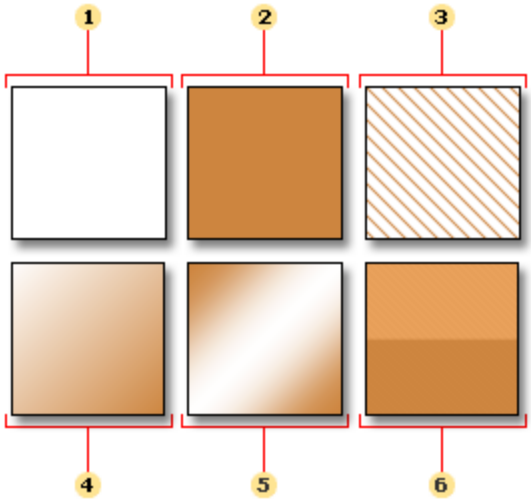


1 **Empty.** The background of a component is transparent.
2 **Solid.** The background of a component is filled with the color you specify.
3 **Hatch.** The background of a component is filled with a texture. The background and foreground colors of the selected texture can be specified individually.
4 **Gradient.** The background of a component is filled with gradient. A Start color, an End color, and a Gradient angle can be specified.
5 **Glare.** The background of a component is filled using the Glare effect.
6 **Glass.** The background of a component is filled using the Glass effect.

## 5.2.2 Fonts and Font Brushes

A **font** is a complete set of characters - letters, numbers, and symbols - that share a common weight, width, and style. Stimulsoft Reports has two components which are used to setup and draw text, the **Text** and **Rich Text** components. The font for these components can be set using the **Font** property within the Object Inspector.

**Selecting Fonts**
Text within a report can be output using different fonts. The font is set using the Font.Name property. Three examples fonts are shown below:

AaBbCcDd
AaBbCcDd
AaBbCcDd

Any font that is installed on your machine and available from the .NET Framework can be used in a report. Most frequently these are OpenType and TrueType fonts. However, when choosing a font try to

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select one that will also be present on a user machine or a report may not render as you would wish at runtime.

**Font Size**
You may well wish to change the size of font on some components, for example a heading may require a much larger font size than a copyright notice.

The font size can be changed using the **Font.Size** property. For example:

**Font Styles**
Different styles can be applied to the font. A font may include one or more styles such as regular, bold, semibold, italic, underlined, and strikeout. You can control the styles using properties such as **Font.Bold**, **Font.Italic**, **Font.Underline**, and **Font.Strikeout**, and the styles may be combined to produce different effects like bold and underlined or bold and italic. Examples of font styles are shown below:

## Font Brushes

Five types of brushes are used to draw a text: **Solid**, **Hatch**, **Gradient**, **Glare**, and **Glass**. The **TextBrush** property is used to control brushes. An example of using the five different brushes is shown below:

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## 5.2.3 Borders

Many components in Stimulsoft Reports can have borders. Where they have been set borders may have different thicknesses, colors, and styles, and there be a drop shadow applied. The Border property of a component is used to control the appearance of the border, and this property can be manipulated either from the Object Inspector or using controls within the Ribbon or the Toolbar depending on whether you are using the Standard of Ribbon interface.

There are two types of borders in Stimulsoft Reports: Simple and Advanced. The Borders can be included in component styles so that they can be automatically applied to multiple components.

Articles in this section describe both types of border and the differences between them.

### 5.2.3.1 Simple Borders

**Border Sides**
Each border consist of 4 segments: **top side**, **left side**, **bottom side**, **right side**. These segments may be shown together or in different combinations. For example:

Using the **Border.Side** property it is possible to setup on which sides a border will be visible.

**Border Style**
Seven styles of border are available - **Solid**, **Dash**, **Dash Dot**, **Dash Dot Dot**, **Dot**, **Double,** and **None**. With simple borders a selected style is applied to all sides of the border at the same time. Examples of

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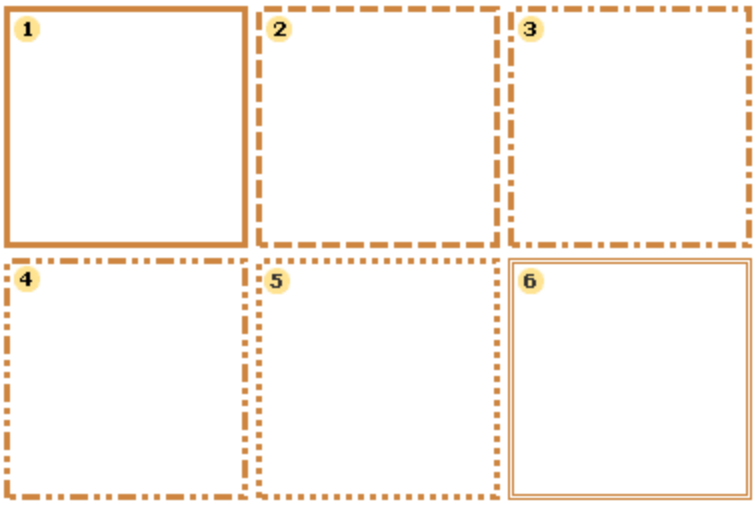
each type of border are shown below:

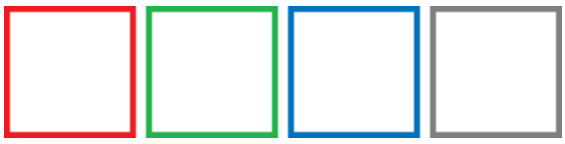



1. **Solid**;
2. **Dash**;
3. **Dash Dot**;
4. **Dash Dot Dot**;
5. **Dot**;
6. **Double**.

The style of border can be selected using the **Border.Style** property. You can also set the border color and thickness.

**Border Color**

The border color can be set using the **Border.Color** property. When using simple borders the selected color is applied to all visible border sides. The image below demonstrates components with different border colors.



**Border Thickness**

When using simple borders the border thickness is applied to all visible border sides. The border thickness can be set using the **Border.Size** property. The image below demonstrates components with different border thicknesses.

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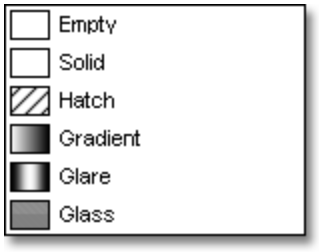
It is important to know that the border thickness is ignored if the **Double** border style is enabled.

**Notice.** The border size is ignored if the Double style is set in the Border.Style property.

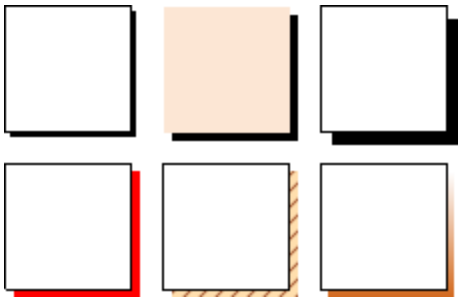
**Shadow**
A component that has borders may have shadow. A shadow has three parameters:

- **Border.DropShadow** - a boolean property. If it is set to true, then a Shadow will be shown
- **Border.ShadowBrush** - the brush to use to draw a shadow;
- **Border.ShadowSize** - the size of a shadow.

**Shadow Styles**
Five types of brushes are used to draw a border: Solid, Hatch, Gradient, Glare, and Glass.

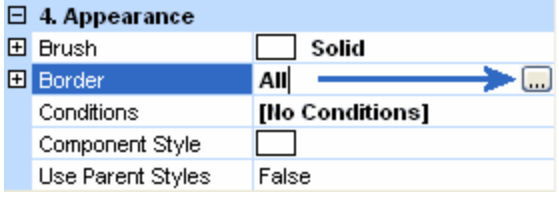



These styles can be combined with the other shadow properties to apply a wide range of different appearances to report components. A few examples:



**Setting Simple Border Properties**
You can set simple Border properties directly from the Object Inspector, or using the Borders Toolbar.

**Object Inspector**
To set properties from the Object Inspector click the ellipsis button beside the Border property

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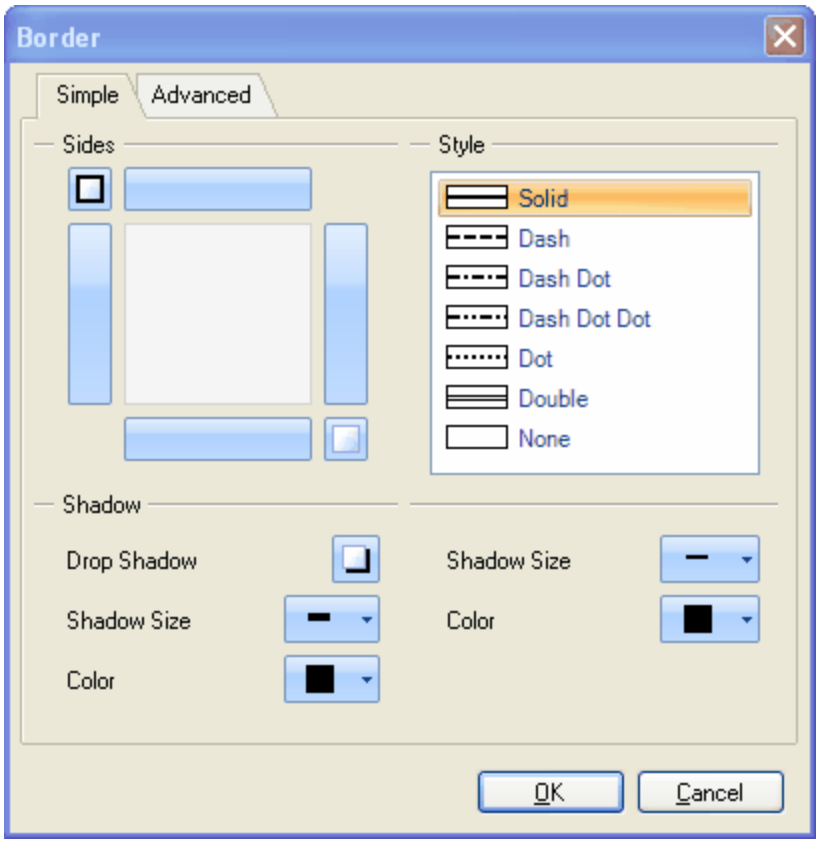
A new dialog will be displayed that allows you to set the options for the border of the component:




Simply select the settings you would like to apply and click the OK button to close the dialog and update the border.

### 5.2.3.2 Advanced Borders

The main difference between simple and advanced border types is that the style, color and thickness of the border can be set separately for each side - **Top Side**, **Left Side, Bottom Side**, **Right Side**. This provides additional opportunities to produce cleverly formatted reports.

**Note:** The advanced border type allows the style, color and thickness to be set separately for each side.

Some examples of advanced borders with different features applied to different sides:

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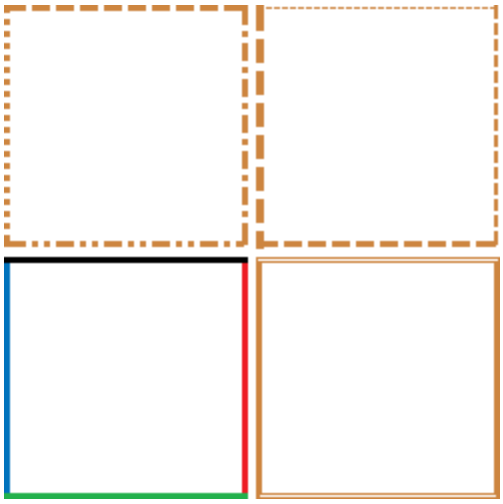
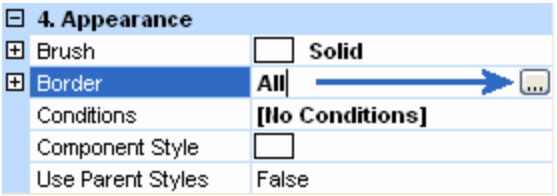


**Setting Advanced Border Properties**
You can set Advanced Border properties only from the Object Inspector.

**Important:** You cannot set advanced border properties from the toolbar.

**Object Inspector**
To set **Advanced** border properties from the Object Inspector click the ellipsis button beside the Border property




The simple **Border** dialog will be displayed. To access the advanced border features simply click the Advanced tab at the top to bring it to the front.

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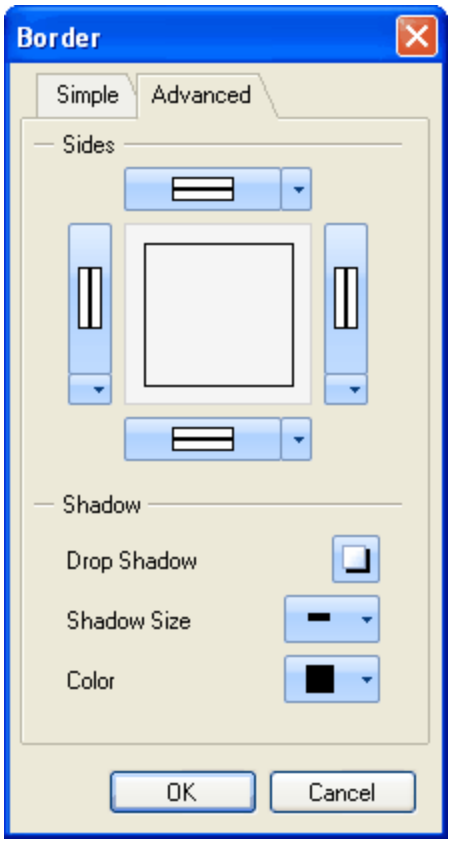


Simply select the settings you would like to apply and click the OK button to close the dialog and update the border.

#### 5.2.3.3 Conditional Borders

It is possible to conditionally select a border based on any condition arising within a report. For example, you may choose to display a red border if a total is negative, and a black border or no border at all if it is positive.

You can set a condition for a border using the Object Inspector in the designer. For more information on this topic please see the Conditional Formatting section.

### 5.2.4 Horizontal Alignment

Some components (such as Text and Image components) allow the horizontal alignment of their content to be specified when creating reports.

To set the horizontal alignment use the Horizontal Alignment property in the Object Inspector or the alignment controls within the Ribbon or the Toolbar depending on whether you are using the Standard of Ribbon interface.

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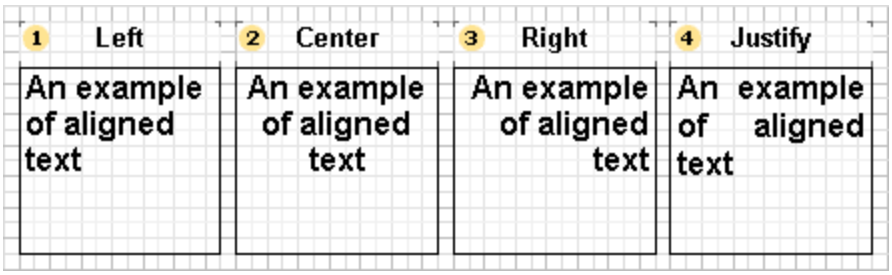
#### 5.2.4.1 Horizontal Text Alignment

The most common alignment for text is Left aligned, where the left hand edge of each line of text starts at the same position in relation to the left hand edge of the component. However, modern design needs more flexibility so Stimulsoft Reports allows a choice of alignments: **Left**, **Center**, **Right**, and **Justify**. These are assigned using the HorizontalAlignment property of the component.

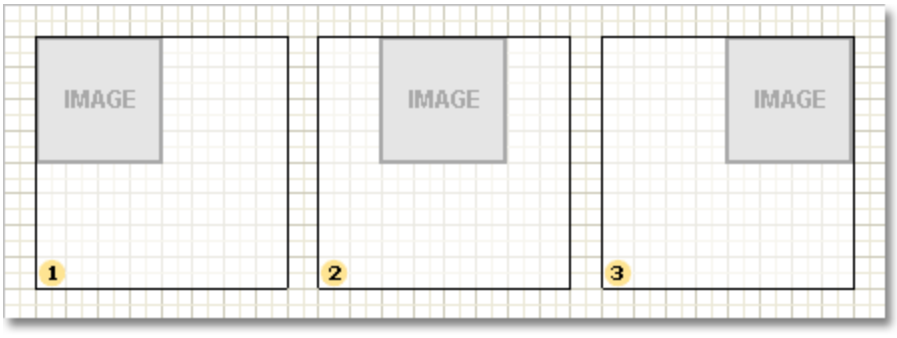



1 **Left.** The text is aligned on the right edge with a ragged right edge.
2 **Center.** The text is aligned centrally within the component with ragged left and right edges.
3 **Right.** The text is aligned on the right edge with a ragged left edge.
4 **Justify.** The text is aligned evenly across the width of the component, providing smooth edges to the text on both sides. This is achieved by automatically adjusting the amount of space between words.

**Alternative Text Alignment**
In addition the alignment property it is possible to set text alignment using **HTML** tags.

#### 5.2.4.2 Horizontal Image Alignment

Stimulsoft Reports allows a choice of three alignments of an image within an image component: **Left**, **Center**, and **Right**.




1 **Left.** The image is aligned on the right edge.
2 **Center.** The image is aligned on the center on the left and right edges of the component.
3 **Right.** The image is aligned on the right edge.

Images will be aligned only when the Stretch property of the image component is set to **false**. If the Stretch property is true then alignment settings will be ignored.

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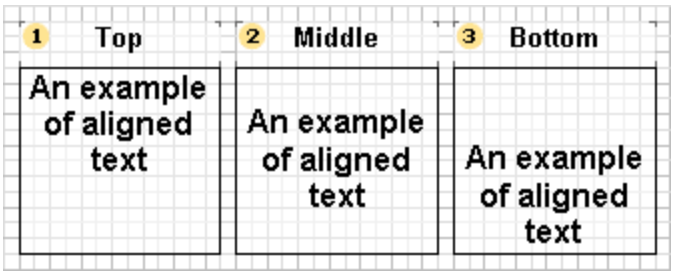
**Important:** Image alignment will be ignored if the Stretch property is set to **true**.

## 5.2.5 Vertical Alignment

Some components (such as Text components) allow the vertical alignment of their content to be specified when creating reports. To set the vertical alignment use the Vertical Alignment property in the Object Inspector or the alignment controls within the Ribbon or the Toolbar depending on whether you are using the Standard of Ribbon interface.

### 5.2.5.1 Vertical Text Alignment

By default a text is aligned with the top edge of a component. But if the need arises, you can install the necessary alignment. In doing so, if there is alignment on the lower side and the text does not fit vertically within the boundaries of the component, it will be truncated on the upper side. If it is aligned to the center, in the case if the text does not fit, he will cut off both the top and bottom side.




1 **Top.** Text is aligned with the top edge of the component.
2 **Center.** Text is aligned centrally between the top and bottom edges of the component.
3 **Bottom.** Text is aligned with by the bottom edge of the component.

### 5.2.5.2 Vertical Image Alignment

To control the vertical alignment for the Image component the same property is used as for the Text component. Images are aligned only if the Stretch property is set to false. Otherwise, alignment will be ignored.

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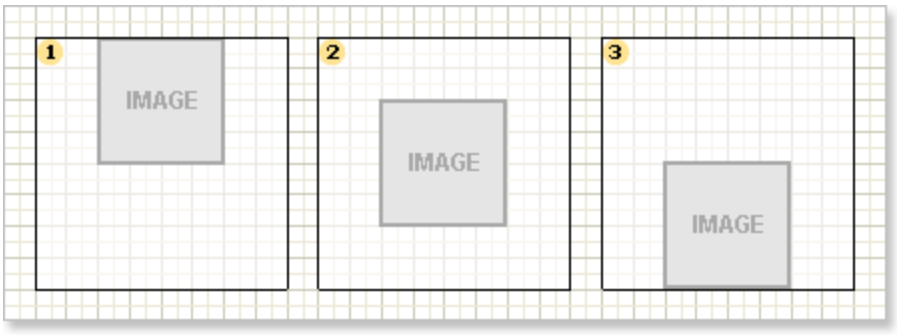


1 **Top.** The image is aligned with the top edge of the component.
2 **Center.** The image is aligned centrally between the top and bottom edges of the component.
3 **Bottom.** The image is aligned with the bottom edge of the component.

Images will be aligned only when the Stretch property of the image component is set to **false**. If the **Stretch** property is true then alignment settings will be ignored.

**Important:** Image alignment will be ignored if the Stretch property is set to true.

## 5.2.6 Styles

A style is a combination of various design attributes which can be applied to report components.

Instead of manually formatting each component, you can create a new style in a report and set its parameters (such as font name, size, and font style) exactly as you want them. The style can then be assigned to any component within the report and it will automatically take on the features of that style.

Another advantage of using styles is that should it become necessary or desirable to change the formatting of a report simply changing the settings of the relevant style will automatically propagate those changes across the entire report. In addition, a specific report style can be saved to a file and can then be used in other reports. This allows a common appearance to be applied to all reports where a corporate style or standard output format is required.

**Name**
Each style has its own name. This name must be unique within a report.

**Description**
Each style also has a description which can be used to explain the intended purpose of the style to others. For example if you create a style called 'Section Heading' you might assign a description 'Bold heading for use at the start of a section'

**Style Types**
There are three types of style:

- **Component**;
- **Cross-Tab**;

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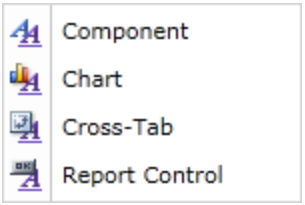
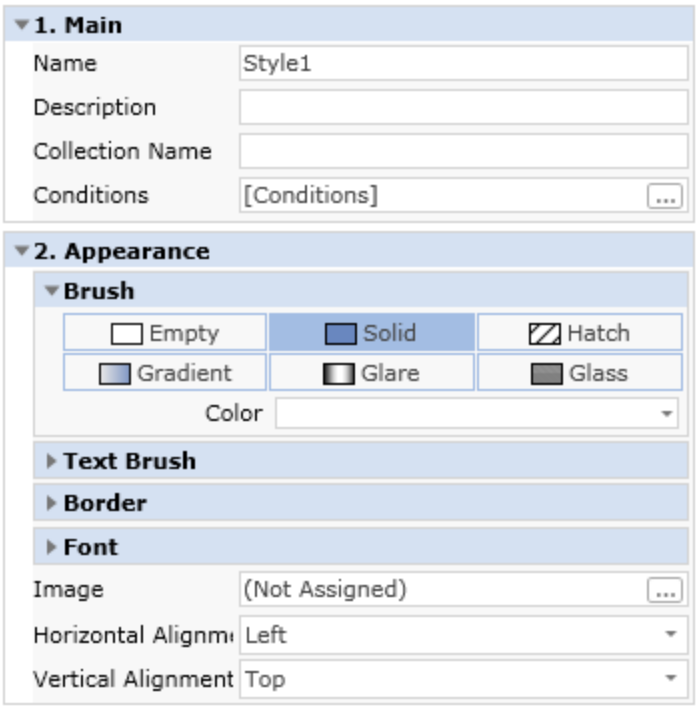
✓ **Chart**.
✓ **Report Control.**




The Component style is designed to be used with all components except the Cross-Tab and Chart components which have their own dedicated style types because they have style features not included in other components.

The component style contains all the basic elements of the appearance of a component including **Font**, **Text Brush**,**Brush**,**Border**,**Horizontal Alignment**, and **Vertical Alignment**. In addition to these parameters, the simple style has parameter flags that determine whether certain style parameters can be modified by the user at design time.




**Applying Styles**
Each component in the report has a **Component Style** property. In the object inspector you can specify any style that exists within the report by clicking the drop down button at the right of the property and selecting it from the list. You can also create or edit styles by clicking the [Edit Styles] option:

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After a style has been assigned to a component the report generator will ensure that the appearance of the component consistently matches that of the specified style. Changes to the style will automatically cascade to all components to which the style has been assigned.

For example, if the developer changes the background color of the style all the components in the report that use that style will take on the new background color.

It is important to remember that even though they may share a style each component has its own design parameters which may not include some of those set in the style. For example, the **Panel** component has no **Font** parameter. If you apply a style to a panel, this parameter will be ignored. In other words the component will use only the design parameters of the style that it actively supports.

**Note:** The component will use only those parameters of the style that it supports.

## 5.2.7 Alternate Row Styles

The **Data** component has more than one property to which it is possible to assign a style. In addition to the standard **ComponentStyle** property this component has two additional properties: **OddStyle** and **EvenStyle**. These properties are used to highlight alternate lines of a report.

By default these properties are not set, but if you allocate suitable styles to each property the report generator will apply those styles to the even and odd numbered lines when rendering the report. In the example below a style with a different background color has been applied to alternate rows:

| Company |
| --- |
| Alfreds Futterkiste |
| Ana Trujillo Emparedados y helados |
| Antonio Moreno Taquería |
| Around the Horn |
| Berglunds snabbköp |
| Blauer See Delikatessen |
| Blondesddsl père et fils |

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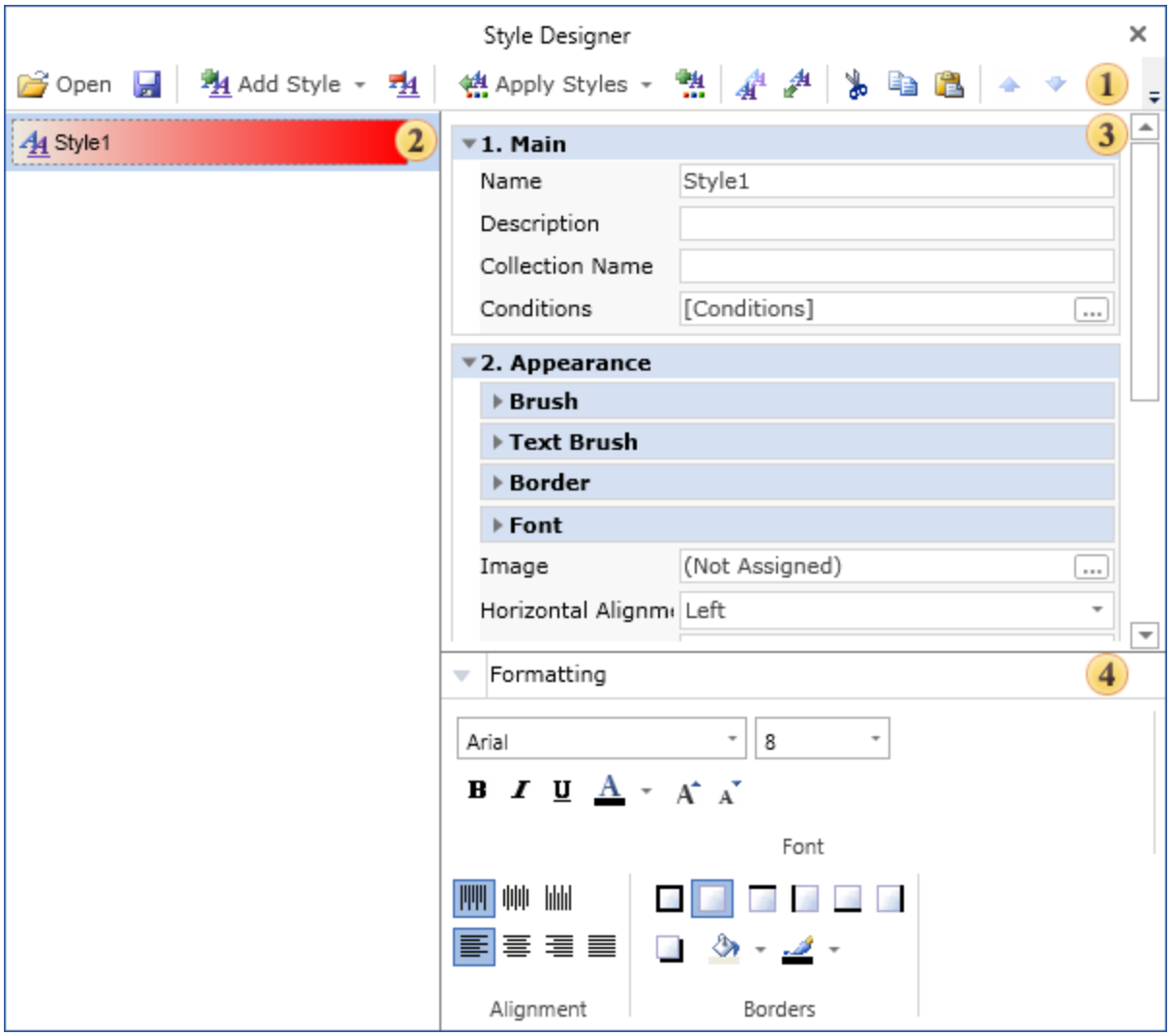
### 5.2.8 UseParentStyles Property

Each component has an additional property management style: the **UseParentStyles** property.

If this property is set to **true**, then the component will use the style of the component on which it is located. For example, if the component is on a page, it will automatically use the style set for that page. If the component is on a panel, then it will use the panel style. If the **UseParentStyles** property is set to true for the panel, then both components will use the page style.

### 5.2.9 Style Designer

The **Style Designer** is an application that is part of the Stimulsoft Reports. It is designed to create and edit styles in the reports. The UI provides has a set of tools for designing reports. Here are some basic information about the Style Designer. The picture below shows the Style Designer dialog:

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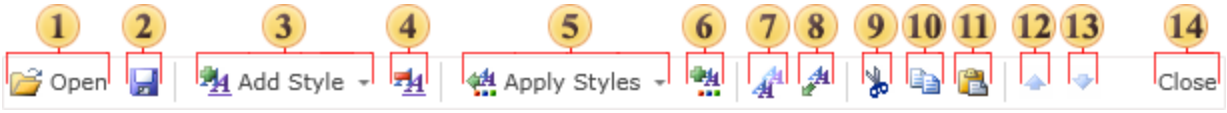
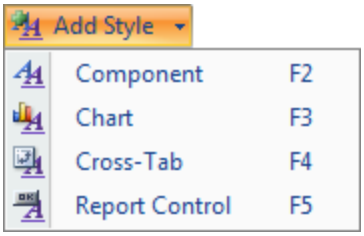
1 The **Toolbar**. Contains the basic controls of the designer.
2 The **Styles Panel**. Shows created styles and collections of styles.
3 The **Properties Panel**. Contains a list of the properties of a selected style.
4 The **Formatting Toolbar**. Contains the controls for formatting components. These controls are active when you create a style for report components.

### 5.2.9.1 Toolbar

The toolbar contains the basic controls for designing styles. The picture below shows the toolbar panel:




1 The button **Open**. Opens the dialogue form, in which you may choose a previously saved style or a collection of styles.
2 The button **Save Style**. Calls a dialogue form in which you may choose where to save the new style.
3 The button **Add Style**. Calls a menu with a list of report items for which you can create styles. The picture below shows this menu:




4 The button **Remove Style**. Deletes the selected style.
5 The button **Apply Styles**. The styles of the created collection will be applied to components in the report. In other words, since applying styles goes via conditions, then, when you click this button, it starts the process of fulfillment of the condition. And depending on this, the component will be applied or that style.
6 The button **Create Style Collection**. Calls a dialog to create a collection of styles in which you may define the parameters of the collection.
7 The button **Duplicate Style**. Creates a duplicate of the selected style.
8 Clicking this button invokes creating a style based on styles of selected components.
9 The button **Cut**. The selected style will be cut and placed on the clipboard.
10 The button **Copy**. The selected style will be copied to the clipboard.
11 The button **Paste**. Pastes from the clipboard the previously copied or cut style.
12 The button **Up**. Moves the selected style up in the generated list on styles panel.
13 The button **Down**. Moves the selected style down in the generated list on the styles panel.
14 The button **Close**. Closes the style designer dialog saving changes.

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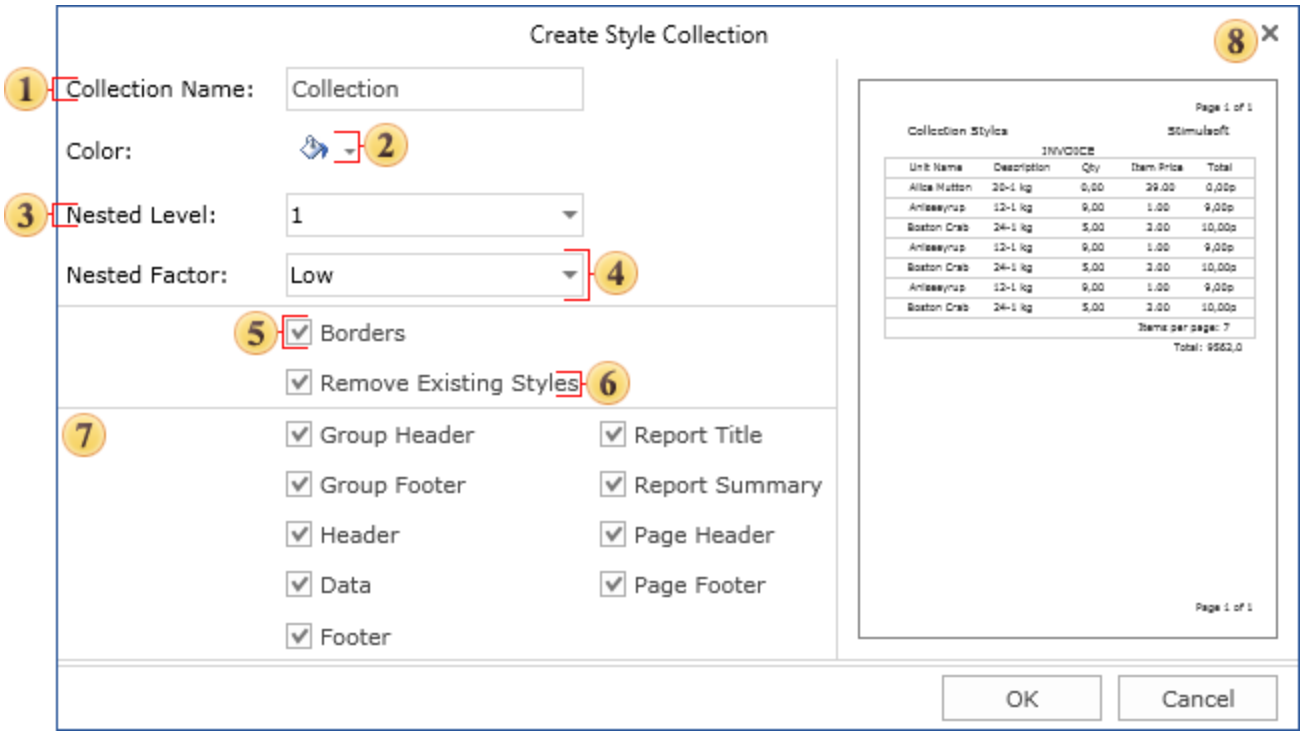
### 5.2.9.2 Creating Collection of Styles

In the style designer you may create a collection of styles. The collection of styles is the list of styles where each style is designed for a specified component of the report. Click the button **Create Style Collection** to create a collection and define the parameters of the collection. The main parameters of the collection are set in the dialog box **Create Style Collection**. The picture below shows this dialog box:




1 The field **Collection Name**. Specifies the name of the collection.
2 The field Color with the drop down menu that contains the color theme and standard colors. The selected color will be basic for the collection.
3 The field **Nested Level**. Select the value of an appropriate level of nesting in the report. It will be reviewed further in the topics below.
4 The field **Nested Factor**. Indicates the coefficient of nesting. You can specify the following values: Low, Normal, High. This coefficient affects on the lightness of the color theme.
5 The option **Borders**. Enabling/disabling this option affects the displaying/hiding the borders in the report components.
6 The option **Remove Existing Styles**. If this option is enabled, then, after creating the new collection, existing styles will be removed. If this option is disabled, the new collection of styles will be added to already existing ones.
7 The panel of components. In this panel, you may check the report components for which styles will be created. For example, if the Header will not be checked, then the style for the HeaderBand will not be created in this collection.
8 The panel **Preview**. Previews a report with styles applied for it.

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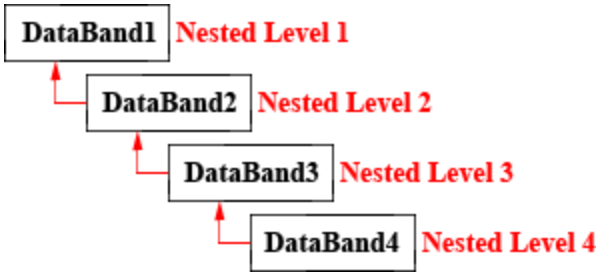
5.2.9.2.1 Nesting Level

The level of nesting is the level of subordination of a component to another component, i.e. to the component of the same type. The first level of nesting is organized when the component is added to the report template, i.e., if you add a component and it will not have a subordination, it will be a component of the first level of nesting. If the report has, for example, two DataBands, one of which subordinates to the second one, then the subordinated band of the second level of nesting, and the subordinating one - of the first level of nesting. If the report contains three DataBands, where the third subordinates to the second band, and the second one the first one, then they will be components of the third, second and first level of nesting. It is also worth noting that there may be several components of one nesting level, i.e., one Data Band may subordinate a few bands. It should be understood that it is impossible to create a nesting level between the DataBand and the ReportTitleBand, because they belong to different types of bands. The picture below schematically shows the levels of nesting of DataBands:




**Nesting level of the DataBands**
As previously mentioned, when the component is added to the report layout, it is given the first level of nesting. Changing the level of nesting can be done using the **Master Component** property. For this, in the field of the property you should select the DataBand to which it will be subordinated. The nesting level of the subordinated band will be the next level of the subordinating one. If you select the DataBand of the third nesting level, the band will be assigned to the fourth nesting level. Also, remember that one band may subordinate to a few bands. In this case, the subordinated bands will have the same nesting level. The picture below shows an example of report organization with the three level nesting:

It should be noted that creating a collection of styles, in the dialog **Create Style Collection**, the tenth nesting level is the maximum to be specified. It can be increased to the 100th using the **Condition**. The **HeaderBand**, **FooterBand**, **GroupHeaderBand** and **GroupFooterBand** relate directly to the **DataBand** and, therefore, their level of nesting depends on the nesting level of the **DataBand** to which they relate . It is important to understand that the nesting level of the **DataBand** and the bands related to it, does not depend on their location in the report.

**The nesting level of other bands**
For the **ReportTitleBands** and **ReportSummaryBand**, you can create a collection of styles of only the

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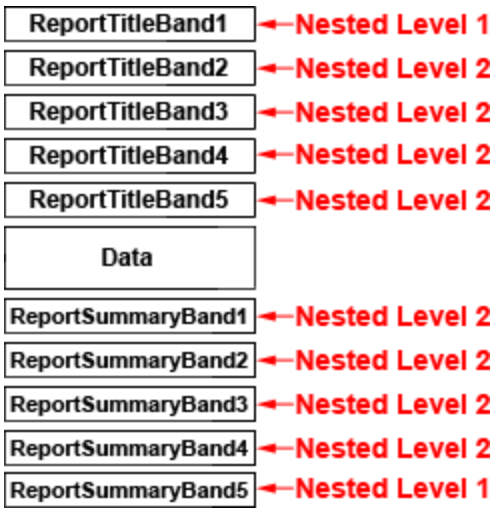
first and second nesting level, i.e. for these bands is impossible to create a collection of styles of the third and subsequent nesting levels. In contrast to the **DataBand**, the subordination is done on the location of bands on the report page. For the **ReportTitleBand** the nesting level is determined as follows: the first (top) band is assigned to the first nesting level, and all subsequent (located below) - the second nesting level. For the **ReportSummaryBand** the nesting level is determined slightly different: all the bands except the last (bottom) is assigned to the second nesting level, and the last (bottom) - to the first level. The picture below schematically shows the nesting levels for the **ReportTitleBands** and **ReportSummaryBands**:




For the **PageHeaderBands** and **PageFooterBands**, you can create a collection of styles only of the first nesting level.

#### 5.2.9.2.2 Conditions

Applying styles to the components is done by means of the **Conditions**. In other words, for the style applied to a component a specified condition or conditions should be executed. Adding or changing conditions is done in the **Conditions** dialog. In order to invoke the dialog, select the **Conditions** in the properties panel of the style designer and the button ... . The picture shows the **Conditions** dialog:

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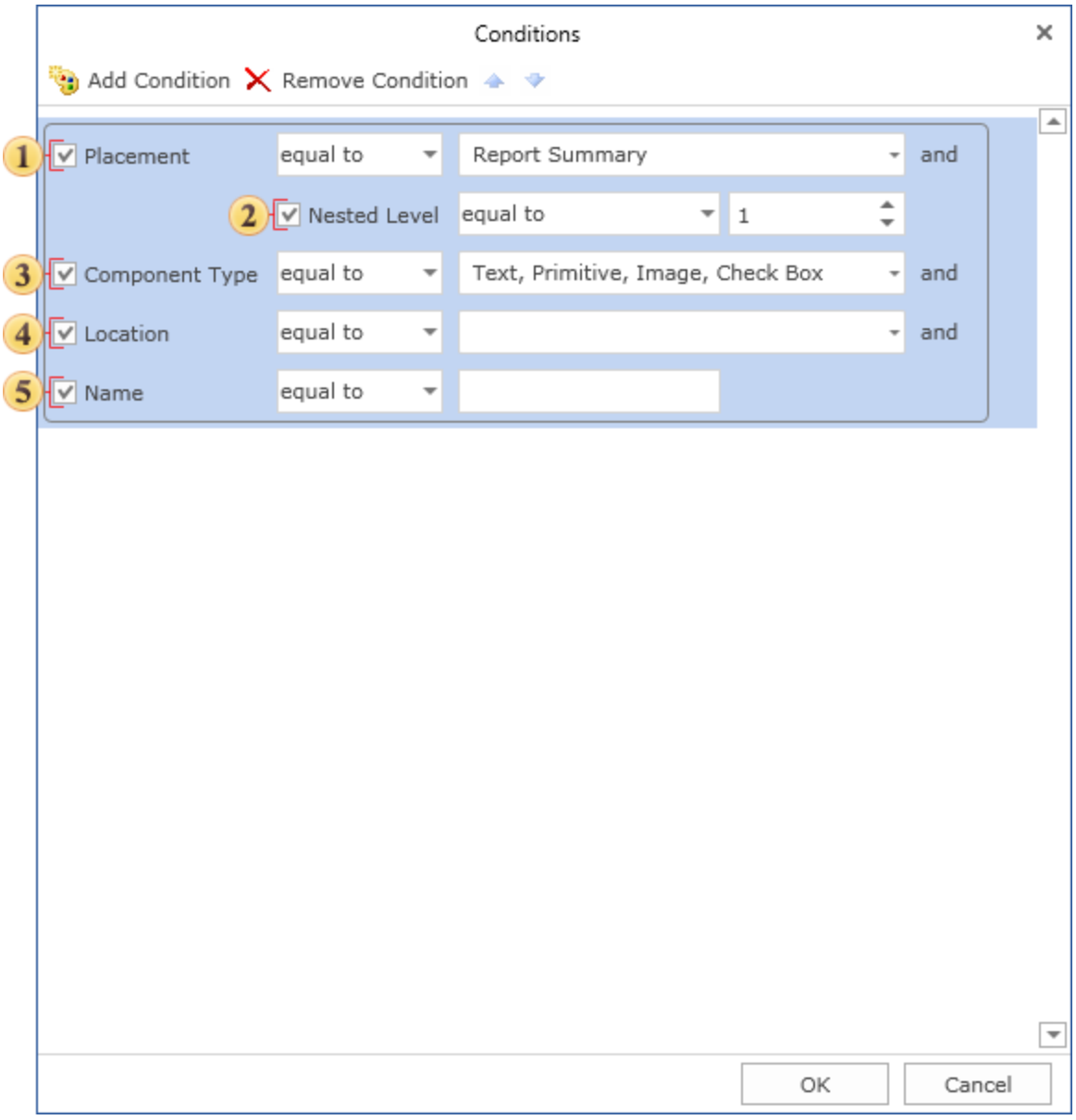


As can be seen from the picture, the dialog contains one block, which shows the different types of conditions. Each type of conditions includes the following fields: **name**, which displays the name of the conditions, as well as the element of enabling this condition; **operation type** used to select an operation selected by means of which calculation of the value of the condition in the latter field specifies the values for which the operation will be performed.

1 The condition **Placement**. This type of conditions provides the opportunity to apply a style to a component, depending on its placement. In the values field containers (bands, panel, table, page) are selected. If to select operation is equal to, then the style will be applied to the components placed on the containers, which are selected in the value field. If you select the operation not equal to, then the style will be applied to the components placed in any container other than the selected value in the field. It should also be noted that in the value field, you can choose several containers.

2 The condition **Nested Level**. C using this kind of condition the components can be styled according

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to the nesting level of containers on which the components are placed. In the value field you may specify the nesting level of the container (maximum 100). In this type of conditions the following operations are available:

- **equal to**. The style will be applied when the nesting level of containers will be equal to the specified level in the field of values;
- **not equal to**. The style will be applied to all components in containers, which the nesting levels will not be equal to the specified level in the field of values;
- **greater than**. The style is applied to the components in containers, which nesting level is greater than the level of the specified field of values;
- **greater than or equal to**. The style is applied to the components in containers, which the nesting level is equal to or greater than the specified level in the field of values;
- **less than**. The style will be applied to components in containers, which nesting level is less than the specified level in the field of values;
- **less than or equal to**. The style is applied to the components in containers, which nesting level will be equal to or less than the specified level in the value field.

It should be noted that this type of condition is only included if the condition of the type Placement.

3 The condition **Component Type**. If you want to apply style to components of a particular type, it can be done using this condition. Also, it should be noted that in the value field of this condition, you can select multiple types of components. In this condition the following operations are available: equal to, if you want the style applied to the components specified in the value field, and the operation not equal to, the choice of which style is applied to all components, except for the selected field value.

4 The condition **Location**. This type of condition provides an opportunity to apply a style to a component, depending on its location in the container. In the value field you may select the desired location of the component. The operations are available for the condition: equal to. The style is applied to all components, the location of which corresponds to the selected field values, and the operation not equal to. The style is applied to all components other than the location of which is selected in the value field. It should also be noted that in the value field you can simultaneously select multiple locations.

5 The condition **Component Name**. If you want to apply a style to a component with a certain name, it can be done using this condition. In the value field should specify the name of the component with respect to which the condition will be executed. The following operations are available when using this operation:

- **equal to**. The style is applied to a component with a name identical to the specified one in the value field;
- **not equal to**. The style is applied to all components, which name matches the specified field of values;
- **containing**. The style will be applied to all components which contain the name of the specified field values in their name;
- **not containing**. The style will be applied to all components, which in its name do not contain the name of the specified field of values;
- **beginning with**. The style will be applied to all components for which the name starts with the name specified in the value field;
- **ending with**. The style will be applied to all components for which the name ends with the name specified in the value field;

Also, it is permissible to combine different types of conditions. In this case, the style will be applied if all the conditions will work. In other words, if you are using the conditions of the type **Placement** and **Component name**, then the style will be applied only if these conditions are fulfilled, i.e. properties of

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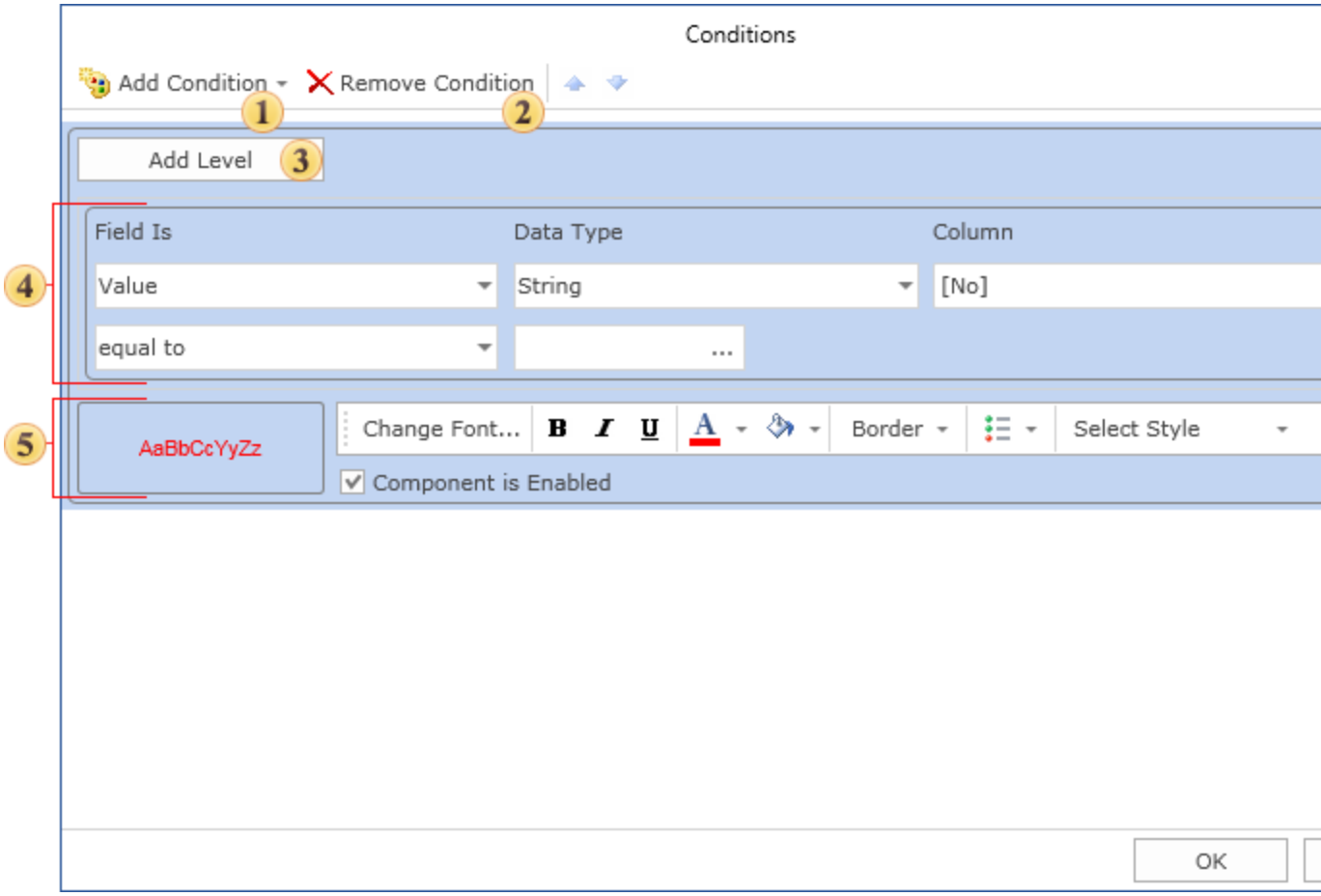
the component will meet two requirements - placement and naming. In addition, you can use the multi-conditions, i.e. when two or more blocks of conditions are involved. In this case, the component will be used only in the style, if all blocks in all conditions are met. The button **Apply Styles** activates executing conditions.

## 5.3 Conditional Formatting

Conditional formatting allows you to change the design of components, depending on certain conditions. For each component in the record, you can set the conditions that define its formatting, such as font style, text color and background color. You can also hide or disable the component. For a component, you can set several conditions, ie appearance of the component may change in different ways depending on the conditions. Setting up conditional formatting is done using the properties of conditions (Conditions). Using this property is called the editor environment. The figure below presents the main elements of the editor of conditions:




**1 Add condition**
This button adds a new conditional formatting to component conditions.
**2 Remove condition**
This button removes a new conditional formatting from component conditions. It is necessary to select

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the conditional formatting.

3 **Add level**

This button adds one level of the condition parameter.

4 **Parameters of condition**

Parameters of condition are specified on this panel.

5 **Parameters of formatting**

Parameters of the component appearance are setup on this panel.

There are two types of conditions - **Value** and **Expression**. How to set a condition is reviewed on next topics.

### 5.3.1 Value Condition

If you use a Value condition you will need to set the condition using a special format which consists of three elements:

**1. The column in the data source**

The column in the data source from which the first value is taken for comparison with the second value of the condition.

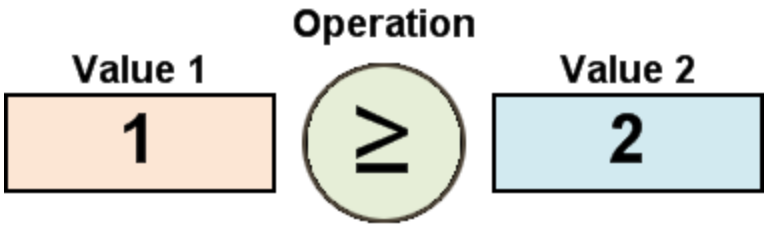
**2. Operator**

The selected operator lets the report generator know how to process the first and second values to obtain the result. For example, the comparison operator tells to the reporting tool to compare the first and the second values to produce the result.

**3. The value to calculate a condition**

This is the second value used to calculate the condition (the first is taken from the data source). The value can be either a constant (for all types of data except for the Expression type), or an expression (for the Expression type).

If you were writing a value condition in code, it would look like this:




For several types of operation three values are used in calculating the condition. These are operations in which the value is checked to determine whether or not it is within a specified range, defined by two values. In addition to the elements described, the condition also includes a data type. The data type helps the reporting tool to identify the type of the second condition, and to automatically modify the list of available types of conditional operator. The picture below shows the panel used to set a value condition:

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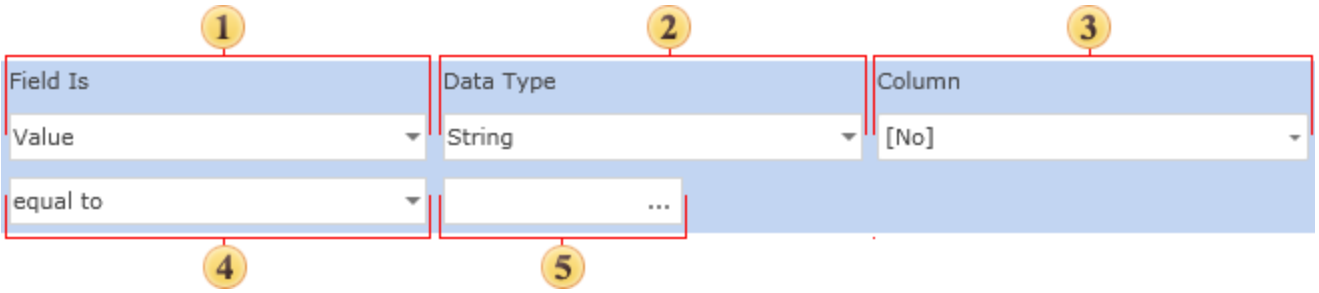


**1 Field Is combo.**
This is used to select the type of condition.
**2 Data Type combo**
This field specifies the type of data with which a condition will work. There are five types of data: String, Numeric, DateTime, Boolean, and Expression. The data type affects how the reporting tool processes the condition. For example, if the data type is a string, then the methods that work with strings are used. In addition, depending on the type of data the list of available operators is automatically changed. For example, the Contains operator is available only for the String data type. The Expression data type provides the ability to specify an expression instead of the second value. In this case the reporting tool will not check the compatibility of the first and the second values of the condition. Therefore, the user should ensure that the expression entered is valid in order to prevent runtime errors.
**3 Column combo**
This is used to specify the column of the data source. The value of the column will be used as the first value of the condition.
**4 Operator combo**
This is used to specify the type of operator to be used when calculating the value of the condition.
**5 Value box**
This is used to specify the comparison value to be used when calculating the value of a condition. For some operations you may need to specify three values.

## 5.3.2 Operators

Operators enable you to define the circumstances in which a condition is deemed to be true. The operators available depend on the data type being operated upon, so only the appropriate operators will be available. For example, a logical condition can only be true or false, so it cannot be greater than anything making the greater than operator inappropriate for that data type.

The table below shows a list of operators and the data with which they can be used:

| Operator | Types of data | | | | | Description |
|---|---|---|---|---|---|---|
| | String | Numerical | Date | Logic | Expression | |
| equal to | ✓ | ✓ | ✓ | ✓ | ✓ | If the first value is equal to the second, then the condition is true. |

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| | | | | | | |
|---|---|---|---|---|---|---|
| not equal to | ✓ | ✓ | ✓ | ✓ | ✓ | If the first value is not equal to the second, then the condition is true. |
| between | | ✓ | ✓ | | ✓ | If the first value is in the range, then the condition is true. |
| not between | | ✓ | ✓ | | ✓ | If the first value is not in the range, then the condition is true. |
| greater than | | ✓ | ✓ | | ✓ | If the first value is greater then the second value, then the condition is true. |
| greater than or equal to | | ✓ | ✓ | | ✓ | If the first value is greater then the second value of equal to the second value, then the condition is true. |
| less than | | ✓ | ✓ | | ✓ | If the first value is less then the second value, then the condition is true. |
| less then or equal to | | ✓ | ✓ | | ✓ | If the first value is less then the second value or equal to the second value, then the condition is true. |
| containing | ✓ | | | | | If the first value contains the second value, then the condition is true. This operator is used only for strings. |
| not containing | ✓ | | | | | If the first value does not contain the second value, then the condition is true. This operator is used only for strings. |

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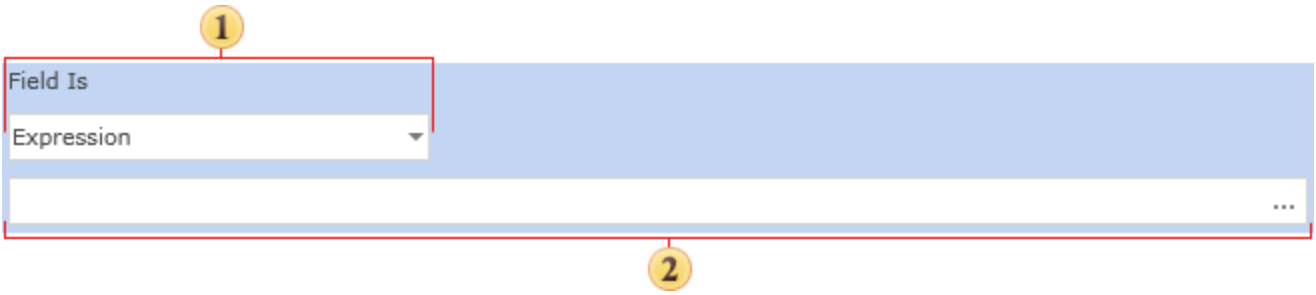
| | | | | | | |
|---|---|---|---|---|---|---|
| beginning with | ✓ | | | | | If the first value starts with the second value, then the condition is true. This operatior is used only for strings. |
| ending with | ✓ | | | | | If the first value ends with the second value, then the condition is true. This operator is used only for strings. |

### 5.3.3 Expression Condition

When you choose to use an Expression condition you define a text expression that returns a boolean value. The value returned determines whether or not the formatting is applied. The configuration panel is shown below:




1 **Field Is.** Field is used to select the type of conditions.
2 **Expression.** This field is used to define an expression that should return a boolean value.

For example, a suitable expression in **C#**:

```
Customers.CustomerName == "MyCustomer"
```

If the expression cannot return a boolean value then the report generator will not be able to render the conditional formatting.

**Important:** The expression MUST return a boolean value or the conditional formatting will fail.

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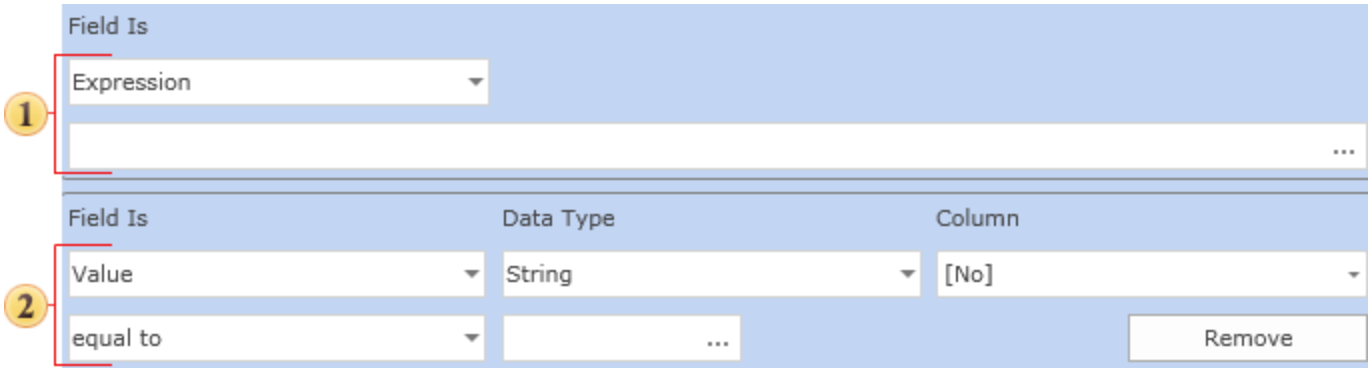
### 5.3.4 Multi Part Conditions

In some cases, one comparison operation may not be sufficient to define the condition. To allow for this situation Stimulsoft Reports allows you to specify a multi part condition. The picture below shows the condition editor a two level multi part condition:




1 The first part of the condition.
2 The second part of the condition.

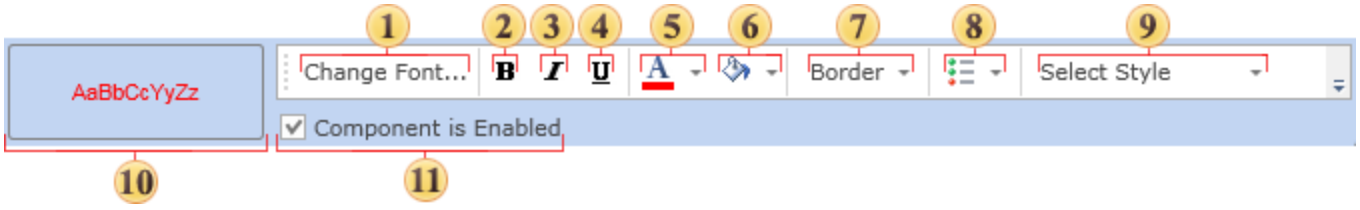
If you were to write this condition in code as a logical expression, it would look like this:

```
(Categories.CategoryID) = 1 or (Categories.CategoryID = 2)
```

It is possible to select the type of logical addition of the various parts of a multi part condition: the **logical AND** or the **Boolean OR**. To define this simply select the appropriate radio button

### 5.3.5 Defining Formatting

If the condition returns true when evaluated by the report engine the formatting of the component will be changed according to the design settings. Setting is carried out using the formatting panel. The picture below shows the components of the control panel:




1 **Font.** Used to select the font.

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2 **Bold button.** Used to define the bold font style.
3 **Italic button.** Used to define the italic font style.
4 **Underlined button.** Used to define the underlined font style.
5 **Font Color Selector.** Used to define the text color.
6 **Background Color Selector.** Used to define the background color.
7 **Border.** Used to set borders.
8 **Control Menu.** Enables/Disables the components of the control panel.
9 **Style button.** This button is used to select a style to be applied.
10 **Pattern.** This shows a preview of how the control will look with the conditional formatting applied.
11 **Component is Enabled check box.** This control lets to control how the result of a condition would affect on the Enabled property of the component.

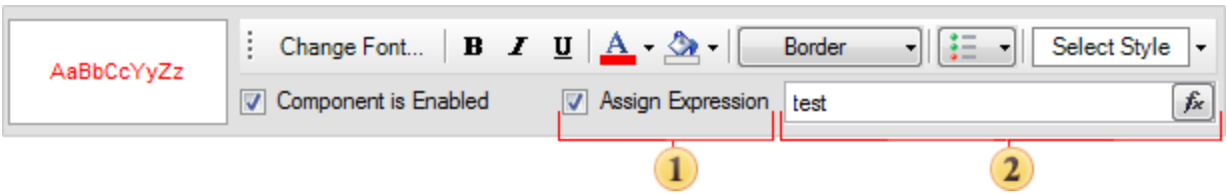
You can enable or disable the accessibility of the component in a report. For example, you can remove a page from a rendered report by setting a condition.

If the condition evaluates to true, then the component appearance will change according to settings made in this panel. If the component does not support the specified appearance (for example, because it has no Font property), the appearance will be automatically deleted.

In addition, you can control the availability of the control within the report using the Component is Enabled check box.

## 5.3.6 Conditional Formatting and Text Components

The conditions editor of text components has differences from other components. It has additional ability to assign text expression, if the condition is true. On the picture below the panel to edit conditions of the text component is shown.




1 **Assign expression.** This flag controls whether or not a text expression is used in the condition. If it is disabled then the expression is not used.
2 **Text expression.** The text expression that will be assigned to a text component if the condition is true.

## 5.3.7 Conditional Formatting and Cross-Tables

The Cross Table condition editor has several differences from the standard condition editor. In particular there are signification differences when writing expressions within conditions, as it adds some special variables such as: **value, tag, tooltip,** and **hyperlink**.

The **value** variable contains the value of the cross table cell and can be used to calculate a condition:

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```
tag > 50
```

In other words, if the value of the cell of a cross table is greater than 50, then the condition is true and formatting that was set in the condition will be applied to the cell.

The **tag**, **tooltip**, and **hyperlink** variables contain the calculated values of the **Tag**, **Tooltip,** and **Hyperlink** properties. For example, you may specify the name of a product in the **Tag** property of the cross table cell:

```
{Products.ProductName}
```

Suppose we wanted to highlight in red the cell of the cross table in which the Coffee product is described. This can be achieved by setting the formatting and using the following condition:

```
tag == "Coffee"
```

### 5.3.8 Visual Styles Menu

It is possible to enable/disable visual styles of a component using the conditional formatting. Enabling/disabling visual styles can be done in the visual styles menu. This menu provides the ability to make choice of those visual styles of the component, which will be applied to it for triggering the condition. The picture below shows the menu of visual styles:

1 The **Font Name** menu item. Enabling/Disabling this item provides an opportunity to change/not change the font in the components that match the condition. If this menu item is disabled (not checked), the font will not be changed, i.e. will remain by default;

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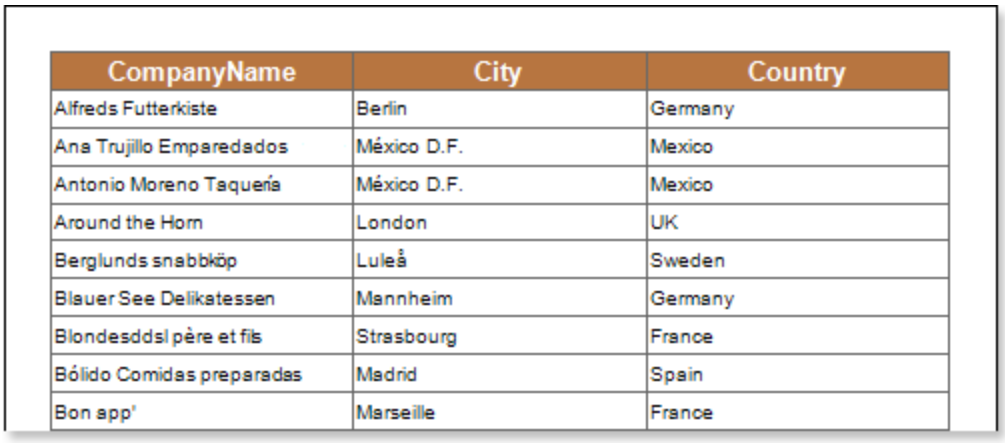
2 The **Font Size** menu item. Enabling/Disabling this item provides an opportunity to change/not change the font size for components that match the condition. If this menu item is disabled (not checked), then the font size will not be changed, i.e. will remain by default;
3 The **Font Bold** menu item. Enabling of this item provides an opportunity to use bold font for the components that match to the condition. If this menu item is disabled (not checked), the font style will not be changed, i.e. will remain by default;
4 The **Font Italic** menu item. Enabling of this item provides an opportunity to use italic font for the components that match to the condition. If this menu item is disabled (not checked), the font style will not be changed, i.e. will remain by default;
5 The **Font Underline** menu item. Enabling of this item provides an opportunity to use the underlined font for components that match to the condition. If this menu item is disabled (not checked), the font style will not be changed, i.e. will remain by default;
6 The **Text Color** menu. Enabling of this item provides an opportunity to apply the text color for the components which correspond to the condition. If this menu item is disabled (not checked), the color of the text will not be changed, i.e. will remain by default;
7 The **Back Color** menu item. Enabling of this item provides an opportunity to apply the background color for the components that match to the condition. If this menu item is disabled (not checked), then the background color will not be changed, i.e. will remain by default;
8 The **Border menu** item. Enabling of this item provides an opportunity to change the borders of components. If this menu item is disabled (not checked), the borders of a component will not be changed, i.e. will remain by default;

#### 5.3.8.1 Font Name

Using conditional formatting it is possible to change the font of a text component. The picture below shows a page of a rendered report:



| CompanyName | City | Country |
|---|---|---|
| Alfreds Futterkiste | Berlin | Germany |
| Ana Trujillo Emparedados | México D.F. | Mexico |
| Antonio Moreno Taquería | México D.F. | Mexico |
| Around the Horn | London | UK |
| Berglunds snabbköp | Luleå | Sweden |
| Blauer See Delikatessen | Mannheim | Germany |
| Blondesddsl père et fils | Strasbourg | France |
| Bólido Comidas preparadas | Madrid | Spain |
| Bon app' | Marseille | France |

For example, you can use different fonts to display the contents of a text component in the odd and even rows. To do this, select a text component, for example a text component with the **{Customers.CompanyName}** expression, in the **DataBand** and call the **Conditions** editor. Then, you must specify the condition, for example: **Line % 2 == 1**. Change the formatting options, in this case, the Font Name. The picture below shows the **Conditions** editor dialog box:

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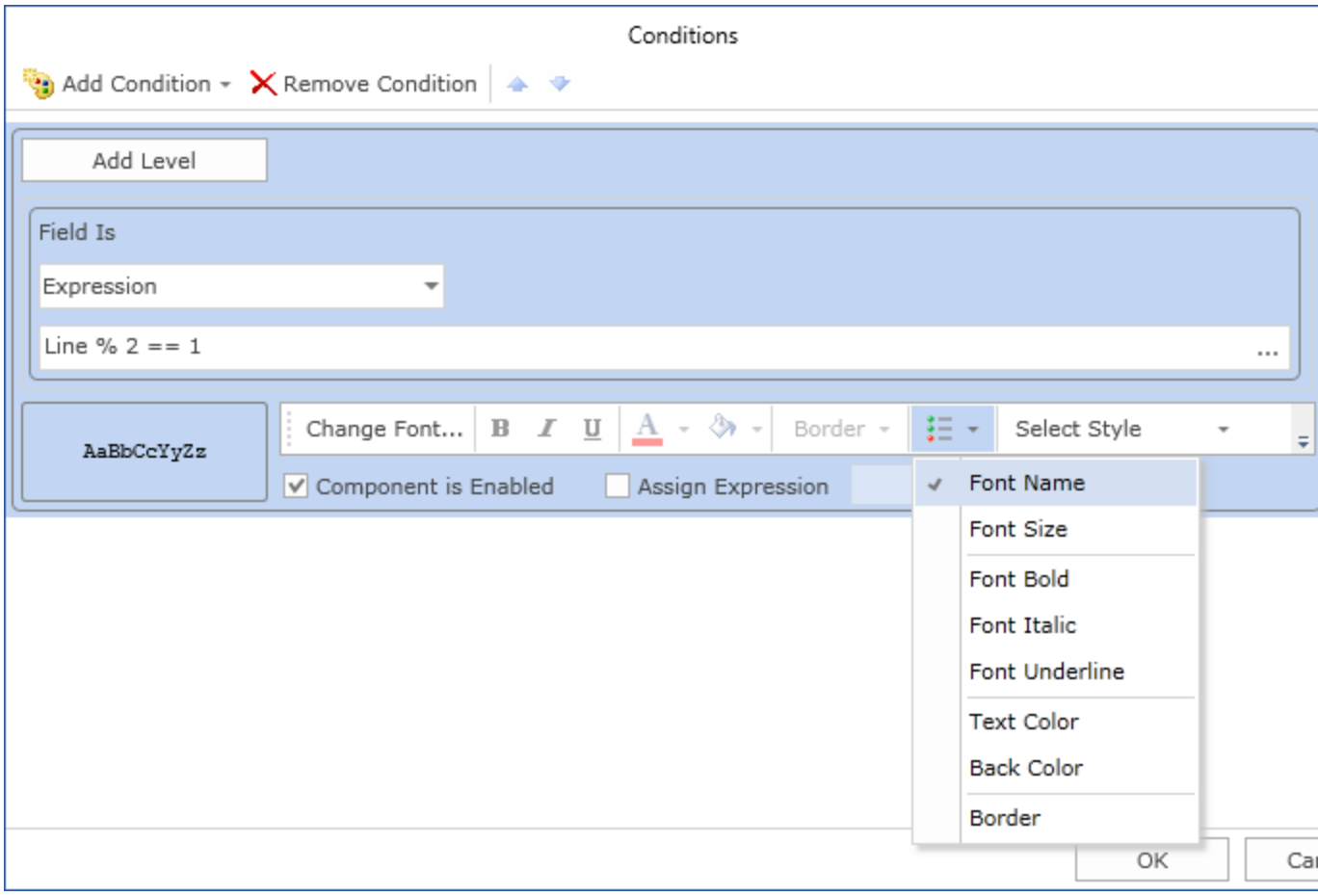
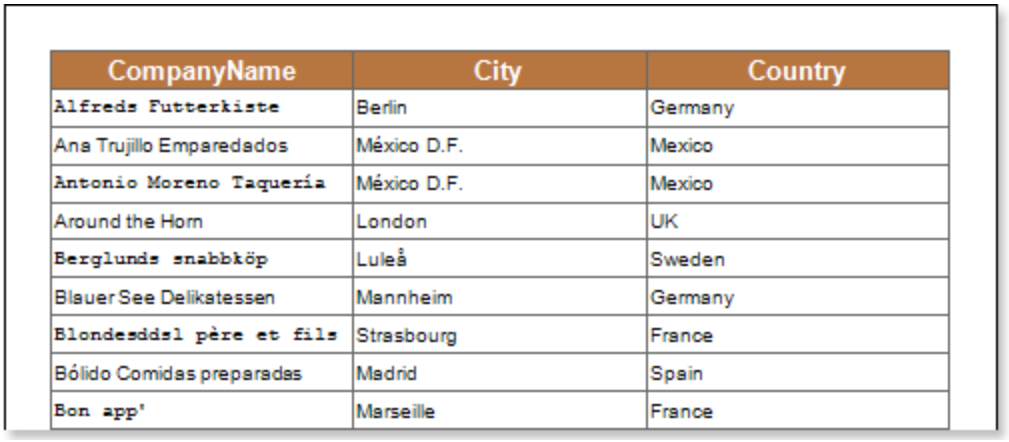



After making changes in the report template, the report engine will perform conditional formatting of text components, according to the specified parameters. In this case, the font of the selected text component will be changed, depending on the condition. The picture below shows the page of the rendered report with conditional formatting:



| CompanyName | City | Country |
|---|---|---|
| Alfreds Futterkiste | Berlin | Germany |
| Ana Trujillo Emparedados | México D.F. | Mexico |
| Antonio Moreno Taquería | México D.F. | Mexico |
| Around the Horn | London | UK |
| Berglunds snabbköp | Luleå | Sweden |
| Blauer See Delikatessen | Mannheim | Germany |
| Blondesddsl père et fils | Strasbourg | France |
| Bólido Comidas preparadas | Madrid | Spain |
| Bon app' | Marseille | France |

As can be seen in the picture above, the text components of the **CompanyName** column, located in the

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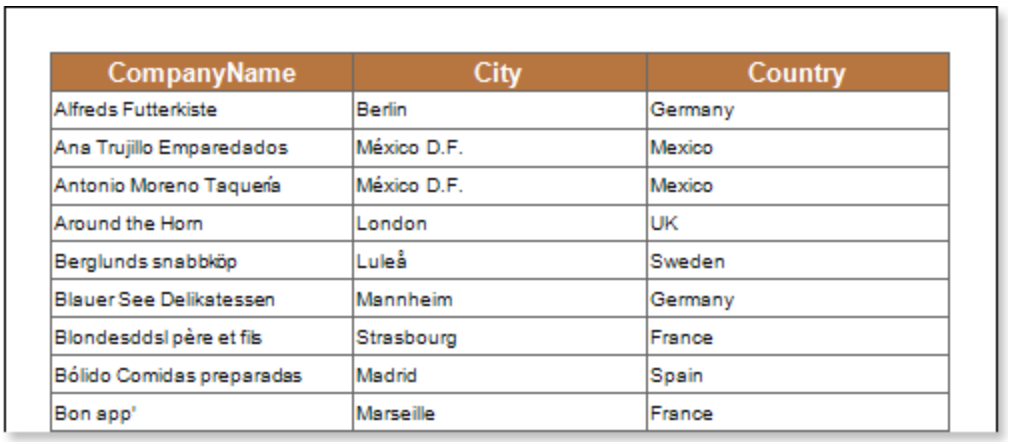
even and odd lines, use different fonts.

### 5.3.8.2 Font Size

Using conditional formatting it is possible to change the font size of a text component. Let us consider in more detail changing the font size of the contents of a text component. The picture below shows a page of a rendered report:



| CompanyName | City | Country |
|---|---|---|
| Alfreds Futterkiste | Berlin | Germany |
| Ana Trujillo Emparedados | México D.F. | Mexico |
| Antonio Moreno Taquería | México D.F. | Mexico |
| Around the Horn | London | UK |
| Berglunds snabbköp | Luleå | Sweden |
| Blauer See Delikatessen | Mannheim | Germany |
| Blondesddsl père et fils | Strasbourg | France |
| Bólido Comidas preparadas | Madrid | Spain |
| Bon app' | Marseille | France |

For example, you can use different font sizes to display the contents of a text component in the odd and even rows. To do this, select a text component, for example a text component with the **{Customers.Country}** expression, in the **DataBand** and call the **Conditions** editor. Then, you must specify the condition, for example: **Line % 2 == 1**. Change the formatting options, in this case, the Font Size. The picture below shows the **Conditions** editor dialog box:

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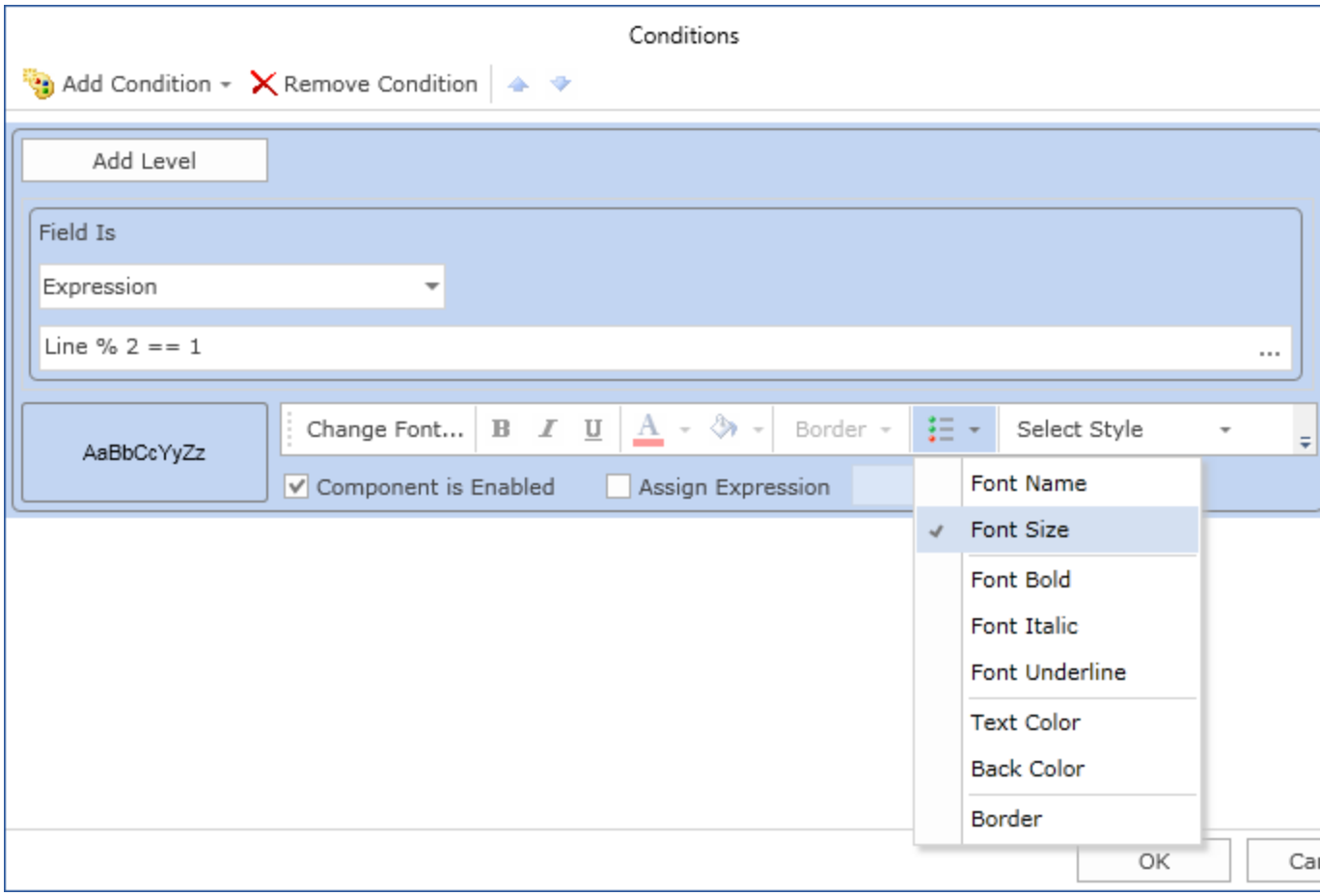


After making changes in the report template, the report engine will perform conditional formatting of text components, according to the specified parameters. In this case, the font size of the selected text component will be changed, depending on the condition. The picture below shows the page of the rendered report with conditional formatting:

| CompanyName | City | Country |
|---|---|---|
| Alfreds Futterkiste | Berlin | Germany |
| Ana Trujillo Emparedados y helad | México D.F. | Mexico |
| Antonio Moreno Taquería | México D.F. | Mexico |
| Around the Horn | London | UK |
| Berglunds snabbköp | Luleå | Sweden |
| Blauer See Delikatessen | Mannheim | Germany |
| Blondesddsl père et fils | Strasbourg | France |
| Bólido Comidas preparadas | Madrid | Spain |
| Bon app' | Marseille | France |

As can be seen in the picture above, the text components of the **Country** column, located in the even and odd lines, use different font sizes.

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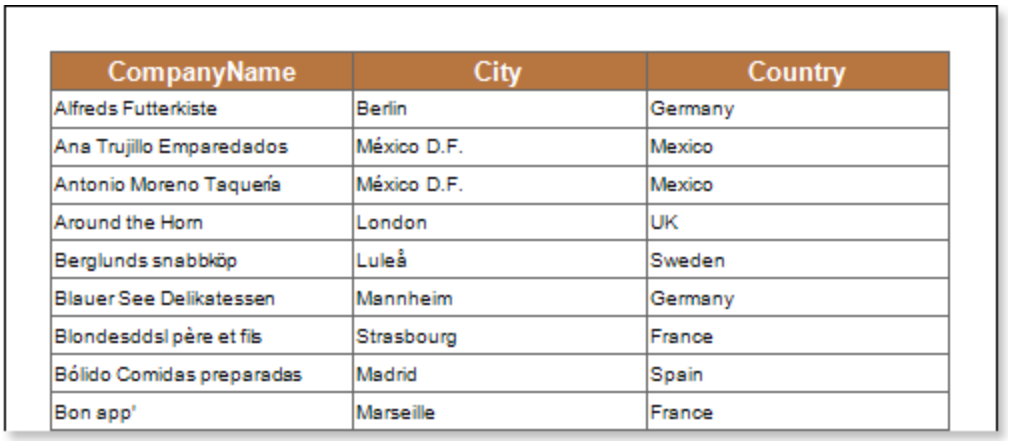
### 5.3.8.3 Font Bold

Using conditional formatting it is possible to apply the bold font for the text component. The picture below shows a page of a rendered report:



| CompanyName | City | Country |
|---|---|---|
| Alfreds Futterkiste | Berlin | Germany |
| Ana Trujillo Emparedados | México D.F. | Mexico |
| Antonio Moreno Taquería | México D.F. | Mexico |
| Around the Horn | London | UK |
| Berglunds snabbköp | Luleå | Sweden |
| Blauer See Delikatessen | Mannheim | Germany |
| Blondesddsl père et fils | Strasbourg | France |
| Bólido Comidas preparadas | Madrid | Spain |
| Bon app' | Marseille | France |

For example, you can make a text bold for components that contain the **Germany** word in the **Country** column. Select a text component with the **{Customers.Country}** expression, in the **DataBand** and call the **Conditions** editor. Then, you should set a condition: select the **Customers.Country** data column, as the first value, and indicate the **Germany** word, as a second value. Also set the **Operation comparison** to the **Containing** value. Change the formatting parameters, in this case, set the font style to bold. The picture below shows the **Conditions** editor dialog box:

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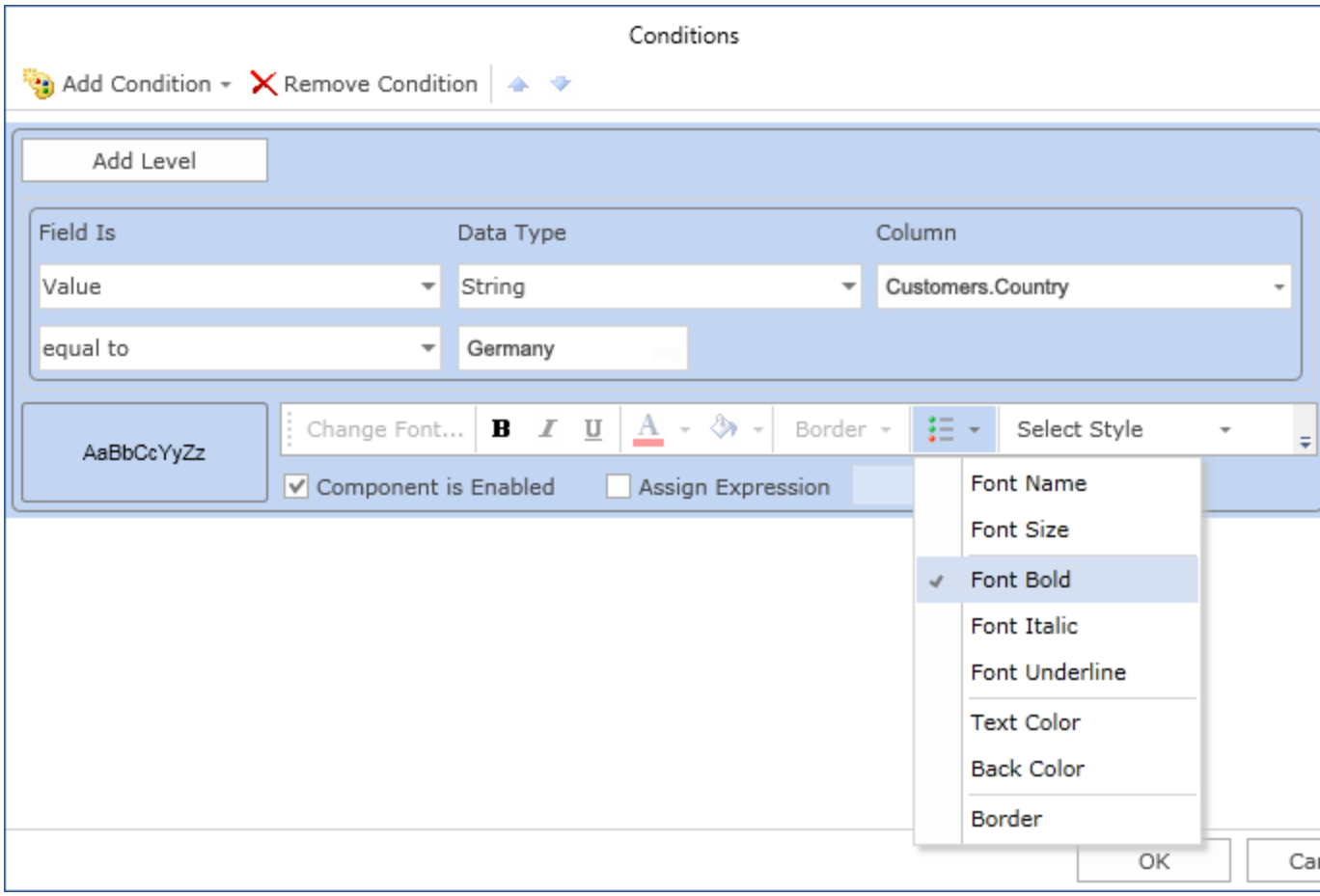


After making changes in the report template, the report engine will perform conditional formatting of text components, according to the specified parameters. In this case, the bold font will be applied for the content of text components that match the specified condition. The picture below shows a page of the rendered report with conditional formatting:

| CompanyName | City | Country |
|---|---|---|
| Alfreds Futterkiste | Berlin | **Germany** |
| Ana Trujillo Emparedados | México D.F. | Mexico |
| Antonio Moreno Taquería | México D.F. | Mexico |
| Around the Horn | London | UK |
| Berglunds snabbköp | Luleå | Sweden |
| Blauer See Delikatessen | Mannheim | **Germany** |
| Blondesddsl père et fils | Strasbourg | France |
| Bólido Comidas preparadas | Madrid | Spain |
| Bon app' | Marseille | France |

As can be seen in the picture above, lines of text components of the **Country** column which contain a **Germany** word are bold.

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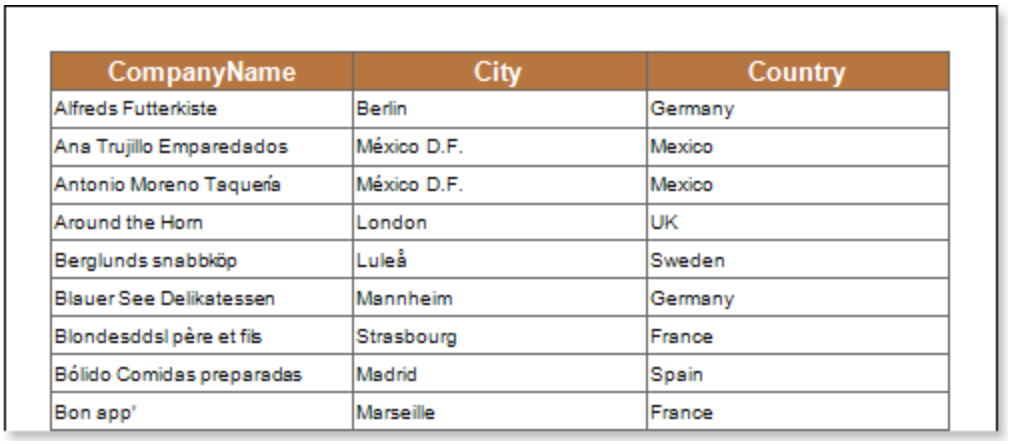
### 5.3.8.4 Font Italic

Using conditional formatting it is possible to apply the italic font for the text component. The picture below shows a page of a rendered report:



| CompanyName | City | Country |
|---|---|---|
| Alfreds Futterkiste | Berlin | Germany |
| Ana Trujillo Emparedados | México D.F. | Mexico |
| Antonio Moreno Taquería | México D.F. | Mexico |
| Around the Horn | London | UK |
| Berglunds snabbköp | Luleå | Sweden |
| Blauer See Delikatessen | Mannheim | Germany |
| Blondesddsl père et fils | Strasbourg | France |
| Bólido Comidas preparadas | Madrid | Spain |
| Bon app' | Marseille | France |

For example, you can make a text italic for components that contain a **B** letter in the **CompanyName** column. Select a text component with the **{Customers.CompanyName}** expression, in the **DataBand** and call the **Conditions** editor. Then, you should set a condition: select the **Customers.CompanyName** data column, as the first value, and indicate the **B** letter, as a second value. Also set the **Operation comparison** to the **Beginning with** value. Change the formatting parameters, in this case, set the font style to italic. The picture below shows the **Conditions** editor dialog box:

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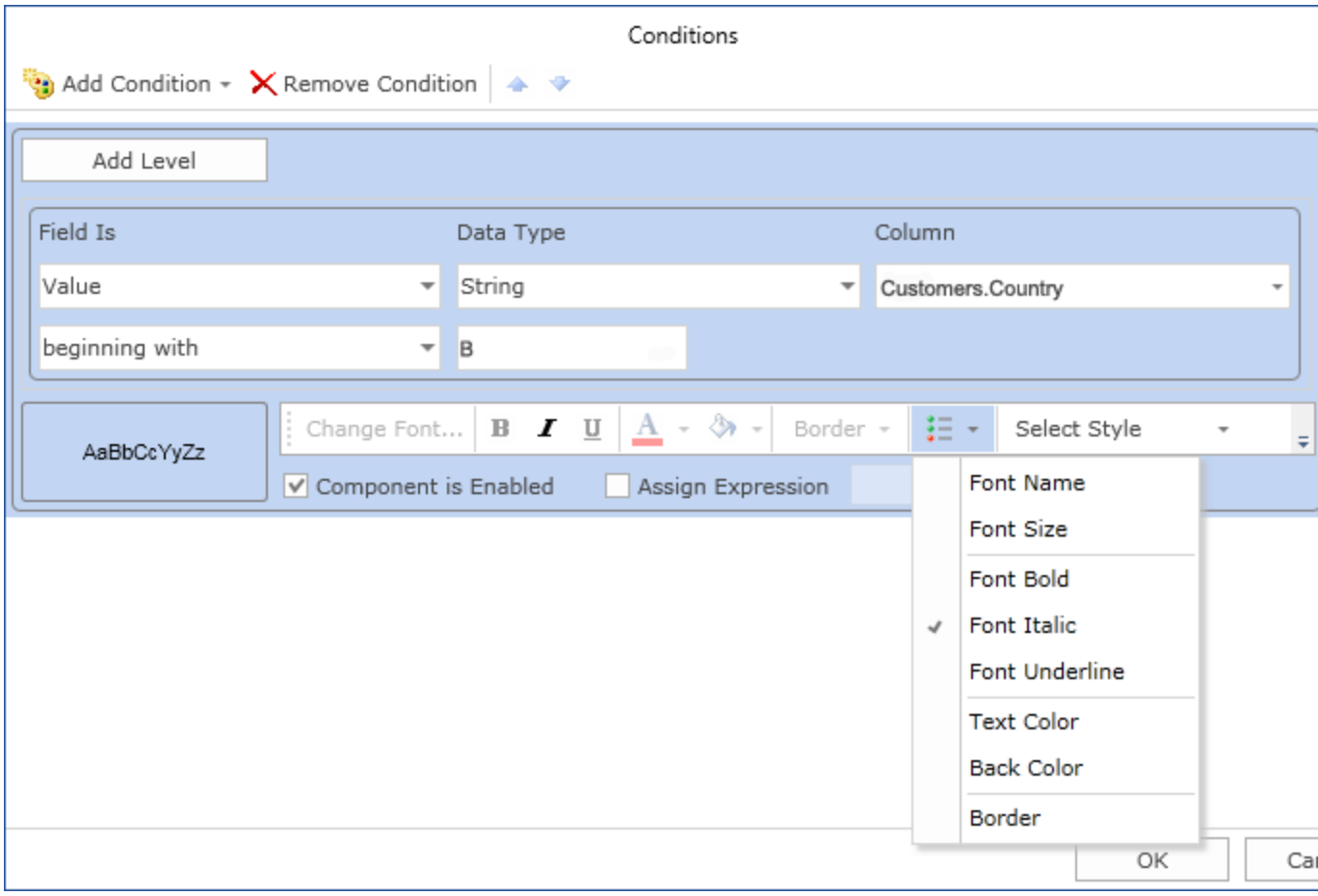


After making changes in the report template, the report engine will perform conditional formatting of text components, according to the specified parameters. In this case, the italic font will be applied for the content of text components that match the specified condition. The picture below shows a page of the rendered report with conditional formatting:

| CompanyName | City | Country |
|---|---|---|
| Alfreds Futterkiste | Berlin | Germany |
| Ana Trujillo Emparedados | México D.F. | Mexico |
| Antonio Moreno Taquería | México D.F. | Mexico |
| Around the Horn | London | UK |
| *Berglunds snabbköp* | Luleå | Sweden |
| *Blauer See Delikatessen* | Mannheim | Germany |
| *Blondesddsl père et fils* | Strasbourg | France |
| *Bólido Comidas preparadas* | Madrid | Spain |
| *Bon app'* | Marseille | France |

As can be seen in the picture above, lines of text components of the **CompanyName** column which starts with a **B** letter are italic.

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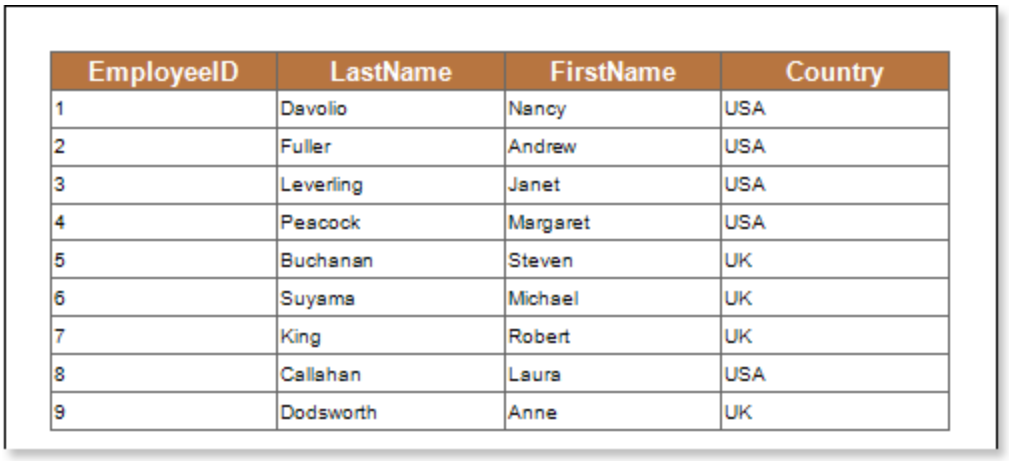
### 5.3.8.5 Font Underlined

Using conditional formatting it is possible to apply the underlined font for the text component. The picture below shows a page of a rendered report:



| EmployeeID | LastName | FirstName | Country |
|---|---|---|---|
| 1 | Davolio | Nancy | USA |
| 2 | Fuller | Andrew | USA |
| 3 | Leverling | Janet | USA |
| 4 | Peacock | Margaret | USA |
| 5 | Buchanan | Steven | UK |
| 6 | Suyama | Michael | UK |
| 7 | King | Robert | UK |
| 8 | Callahan | Laura | USA |
| 9 | Dodsworth | Anne | UK |

For example, you can make a text underlined for components that contain a **Nancy** word in the **FirstName** column. Select a text component with the **{Employees.LastName}** expression, in the **DataBand** and call the **Conditions** editor. Then, you should set a condition: select the **Employees. FirstName** data column, as the first value, and indicate the **Nancy** letter, as a second value. Also set the **Operation comparison** to the **not equal to** value. Change the formatting parameters, in this case, set the font style to underlined. The picture below shows the **Conditions** editor dialog box:

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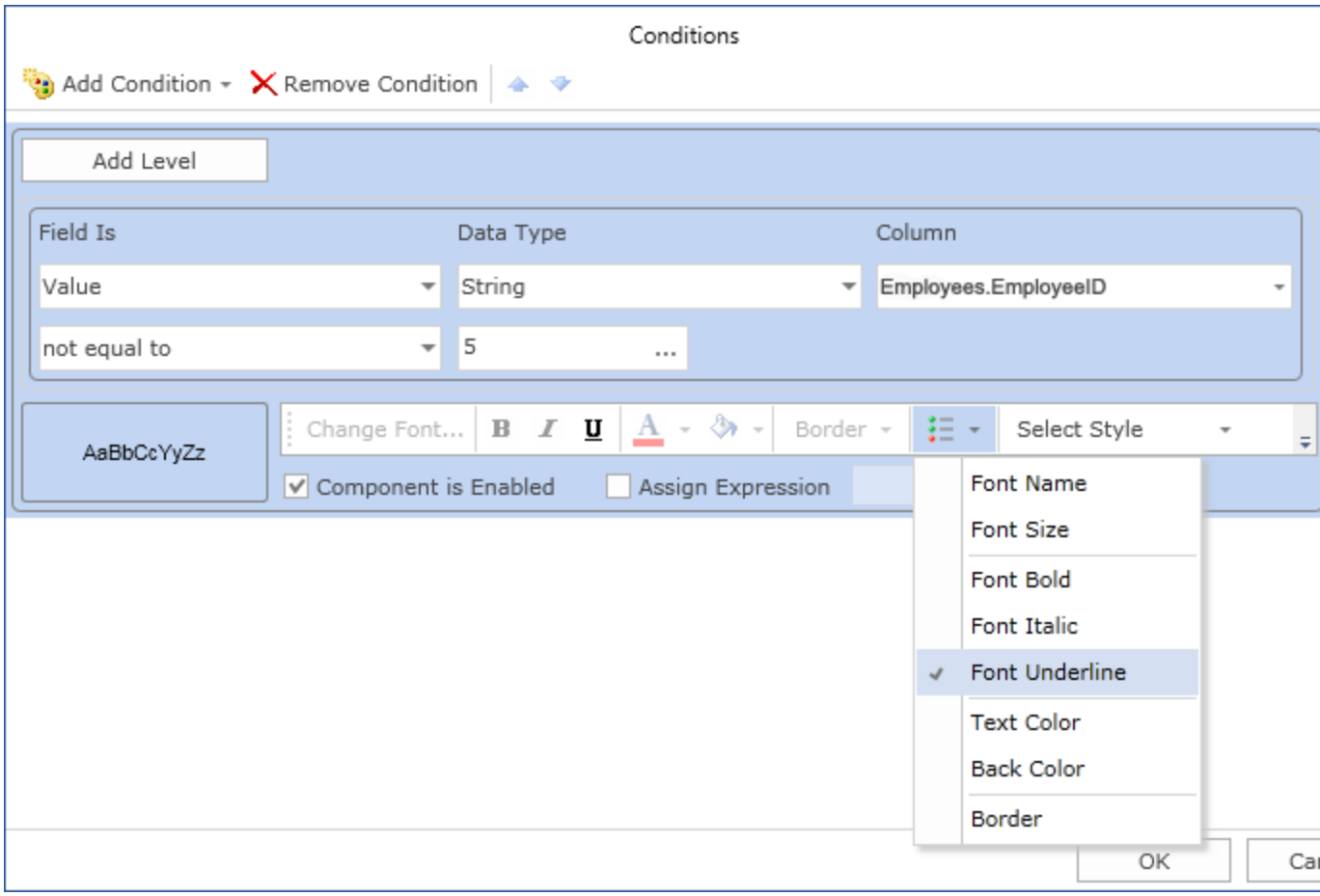


After making changes in the report template, the report engine will perform conditional formatting of text components, according to the specified parameters. In this case, the underlined font will be applied for the content of text components that match the specified condition. The picture below shows a page of the rendered report with conditional formatting:

| EmployeeID | LastName | FirstName | Country |
|---|---|---|---|
| 1 | Davolio | Nancy | USA |
| 2 | Fuller | Andrew | USA |
| 3 | Leverling | Janet | USA |
| 4 | Peacock | Margaret | USA |
| 5 | Buchanan | Steven | UK |
| 6 | Suyama | Michael | UK |
| 7 | King | Robert | UK |
| 8 | Callahan | Laura | USA |
| 9 | Dodsworth | Anne | UK |

As can be seen in the picture above, lines of text components of the **FirstName** column which starts with the **Nancy** word are underlined.

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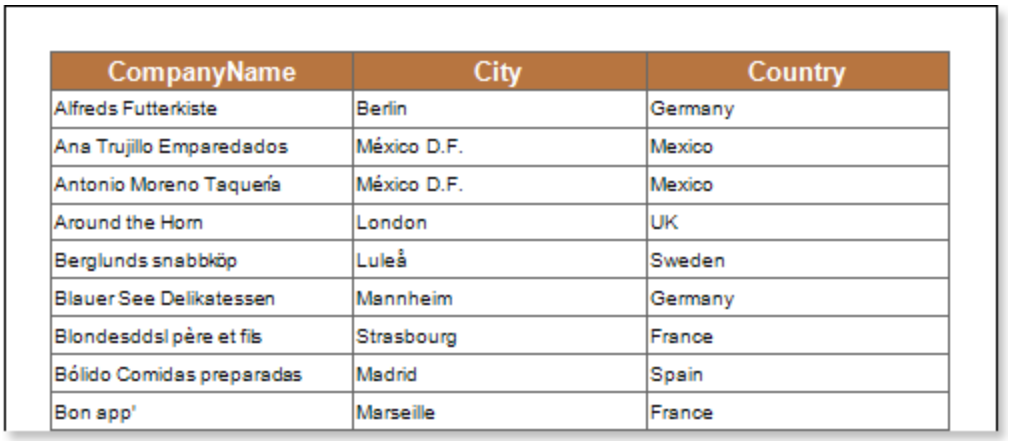
### 5.3.8.6 Text Color

Using conditional formatting it is possible to apply the color for the text component. The picture below shows a page of a rendered report:



| CompanyName | City | Country |
|---|---|---|
| Alfreds Futterkiste | Berlin | Germany |
| Ana Trujillo Emparedados | México D.F. | Mexico |
| Antonio Moreno Taquería | México D.F. | Mexico |
| Around the Horn | London | UK |
| Berglunds snabbköp | Luleå | Sweden |
| Blauer See Delikatessen | Mannheim | Germany |
| Blondesddsl père et fils | Strasbourg | France |
| Bólido Comidas preparadas | Madrid | Spain |
| Bon app' | Marseille | France |

For example, you can change a text color of entries which ends with an **o** letter in the **Country** column. Select a text component with the **{Customers.Country}** expression, in the **DataBand** and call the **Conditions** editor. Then, you should set a condition: select the **Customers.Country** data column, as the first value, and indicate the **o** letter, as a second value. Also set the **Operation comparison** to the **ending with** value. Change the formatting parameters, in this case, change the text color. The picture below shows the **Conditions** editor dialog box:

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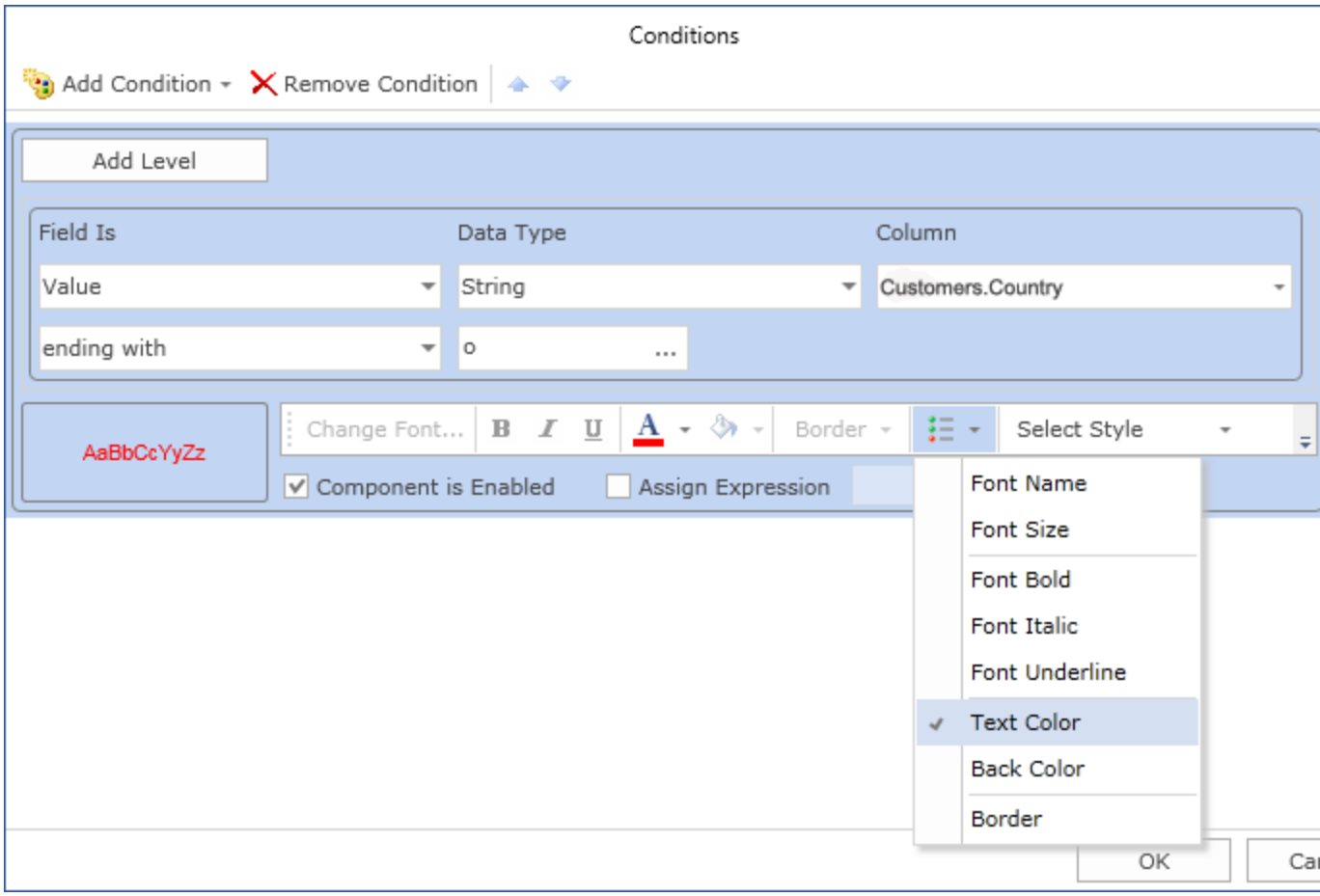


After making changes in the report template, the report engine will perform conditional formatting of text components, according to the specified parameters. In this case, the text color will be applied for the content of text components that match the specified condition. The picture below shows a page of the rendered report with conditional formatting:

| CompanyName | City | Country |
|---|---|---|
| Alfreds Futterkiste | Berlin | Germany |
| Ana Trujillo Emparedados | México D.F. | Mexico |
| Antonio Moreno Taquería | México D.F. | Mexico |
| Around the Horn | London | UK |
| Berglunds snabbköp | Luleå | Sweden |
| Blauer See Delikatessen | Mannheim | Germany |
| Blondesddsl père et fils | Strasbourg | France |
| Bólido Comidas preparadas | Madrid | Spain |
| Bon app' | Marseille | France |

As can be seen in the picture above, lines of text components of the **Country** column which ends with the **o** letter are red.

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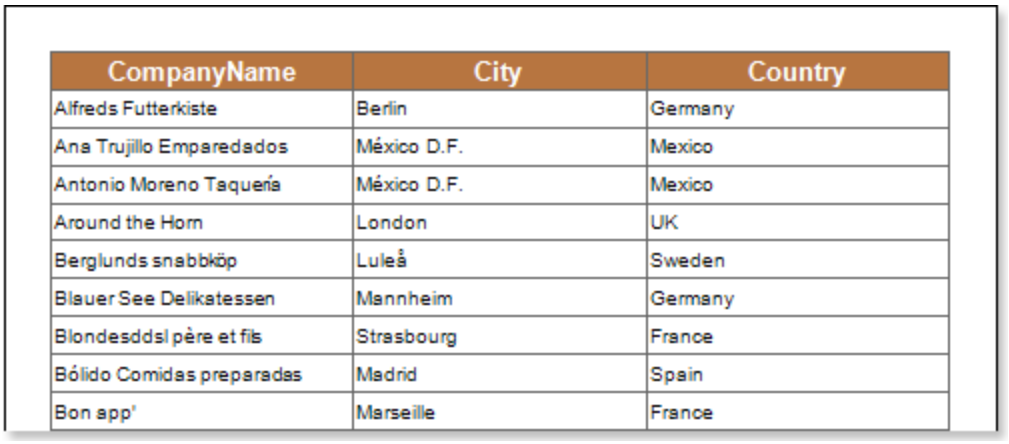
### 5.3.8.7 Back Color

Using conditional formatting it is possible to apply the background color for the text component. The picture below shows a page of a rendered report:



| CompanyName | City | Country |
|---|---|---|
| Alfreds Futterkiste | Berlin | Germany |
| Ana Trujillo Emparedados | México D.F. | Mexico |
| Antonio Moreno Taquería | México D.F. | Mexico |
| Around the Horn | London | UK |
| Berglunds snabbköp | Luleå | Sweden |
| Blauer See Delikatessen | Mannheim | Germany |
| Blondesddsl père et fils | Strasbourg | France |
| Bólido Comidas preparadas | Madrid | Spain |
| Bon app' | Marseille | France |

For example, you can change the background color of text components which contain a **London** word in the **City** column. Select a text component with the **{Customers.City}** expression, in the **DataBand** and call the **Conditions** editor. Then, you should set a condition: select the **Customers.City** data column, as the first value, and indicate the **London** word, as a second value. Also set the **Operation comparison** to the **containing** value. Change the formatting parameters, in this case, change the background color. The picture below shows the **Conditions** editor dialog box:

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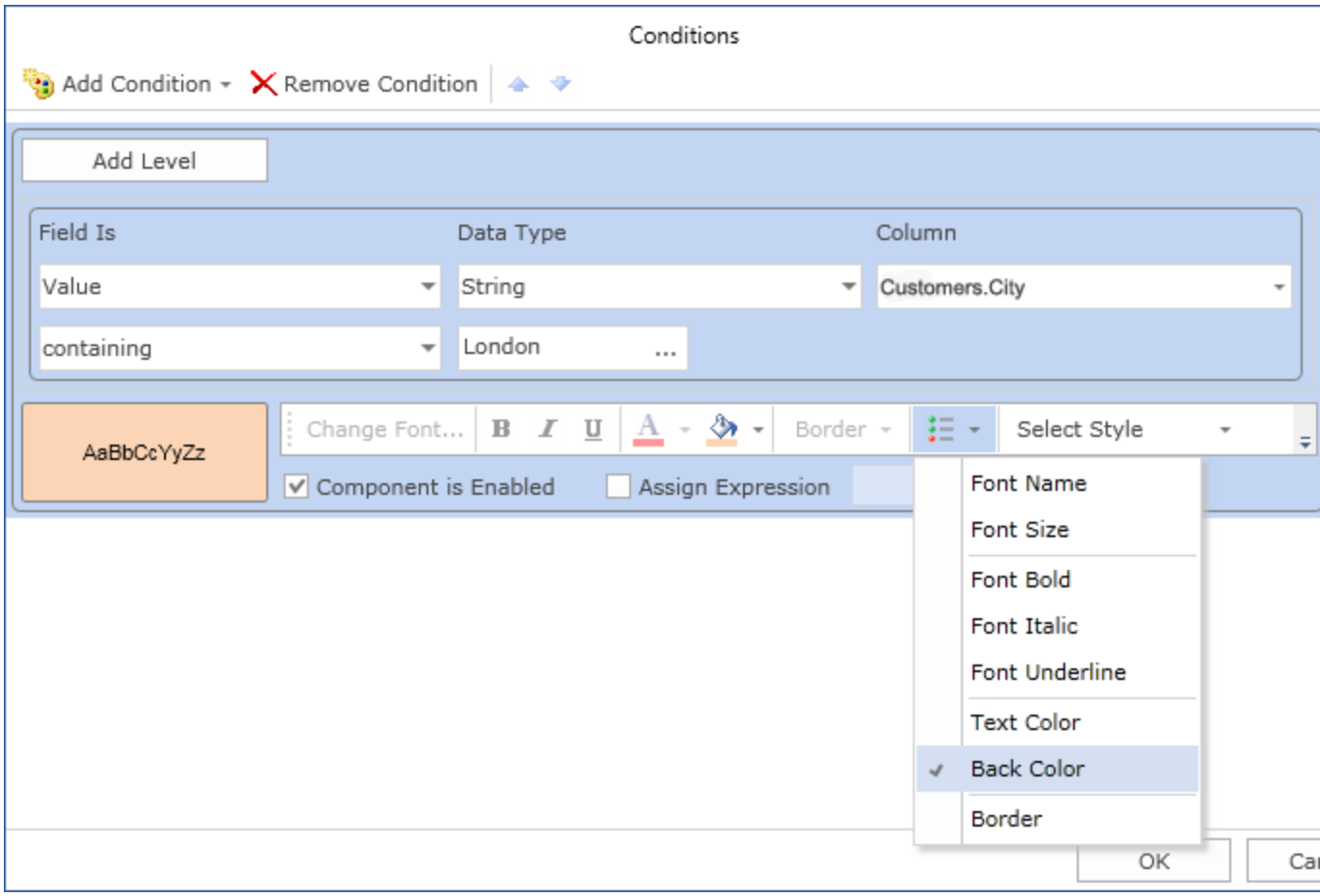


After making changes in the report template, the report engine will perform conditional formatting of text components, according to the specified parameters. In this case, the background color will be applied for the content of text components that match the specified condition. The picture below shows a page of the rendered report with conditional formatting:

| CompanyName | City | Country |
|---|---|---|
| Alfreds Futterkiste | Berlin | Germany |
| Ana Trujillo Emparedados | México D.F. | Mexico |
| Antonio Moreno Taquería | México D.F. | Mexico |
| Around the Horn | London | UK |
| Berglunds snabbköp | Luleå | Sweden |
| Blauer See Delikatessen | Mannheim | Germany |
| Blondesddsl père et fils | Strasbourg | France |
| Bólido Comidas preparadas | Madrid | Spain |
| Bon app' | Marseille | France |

As can be seen in the picture above, background color of text components of the **City** column which contain the **London** word, will be changed.

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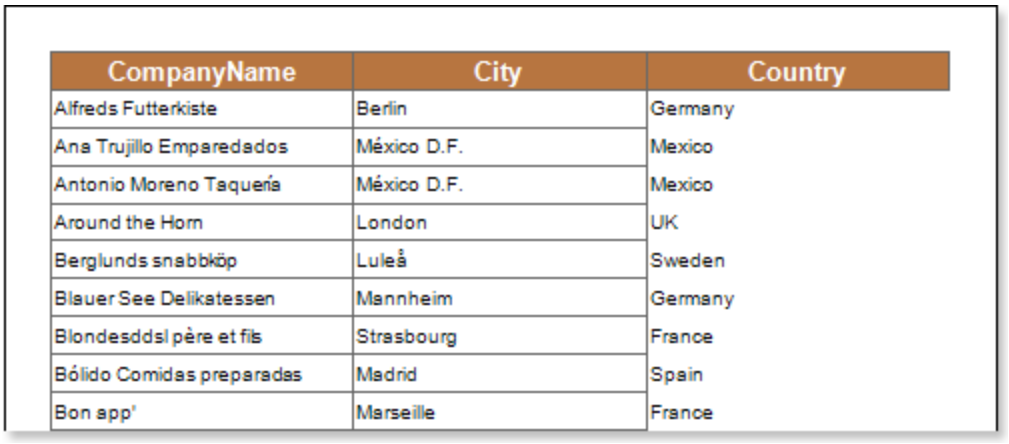
### 5.3.8.8 Borders

Using conditional formatting it is possible to apply borders for the text component. The picture below shows a page of a rendered report:



| CompanyName | City | Country |
|---|---|---|
| Alfreds Futterkiste | Berlin | Germany |
| Ana Trujillo Emparedados | México D.F. | Mexico |
| Antonio Moreno Taquería | México D.F. | Mexico |
| Around the Horn | London | UK |
| Berglunds snabbköp | Luleå | Sweden |
| Blauer See Delikatessen | Mannheim | Germany |
| Blondesddsl père et fils | Strasbourg | France |
| Bólido Comidas preparadas | Madrid | Spain |
| Bon app' | Marseille | France |

For example, you can set borders of text components which contain a **Germany** word in the **Country** column. Select a text component with the **{Customers.Country}** expression, in the **DataBand** and call the **Conditions** editor. Then, you should set a condition: select the **Customers.Country** data column, as the first value, and indicate the **Germany** word, as a second value. Also set the **Operation comparison** to the **containing** value. Change the formatting parameters, in this case, set borders. It is possible to configure showing borders. The following options are available: **All** (show all borders), **None** (Do not show borders), **Top** (show a top border), **Left** (show a left border), **Bottom** (show a bottom border), **Right** (show a right border). The picture below shows the **Conditions** editor dialog box:

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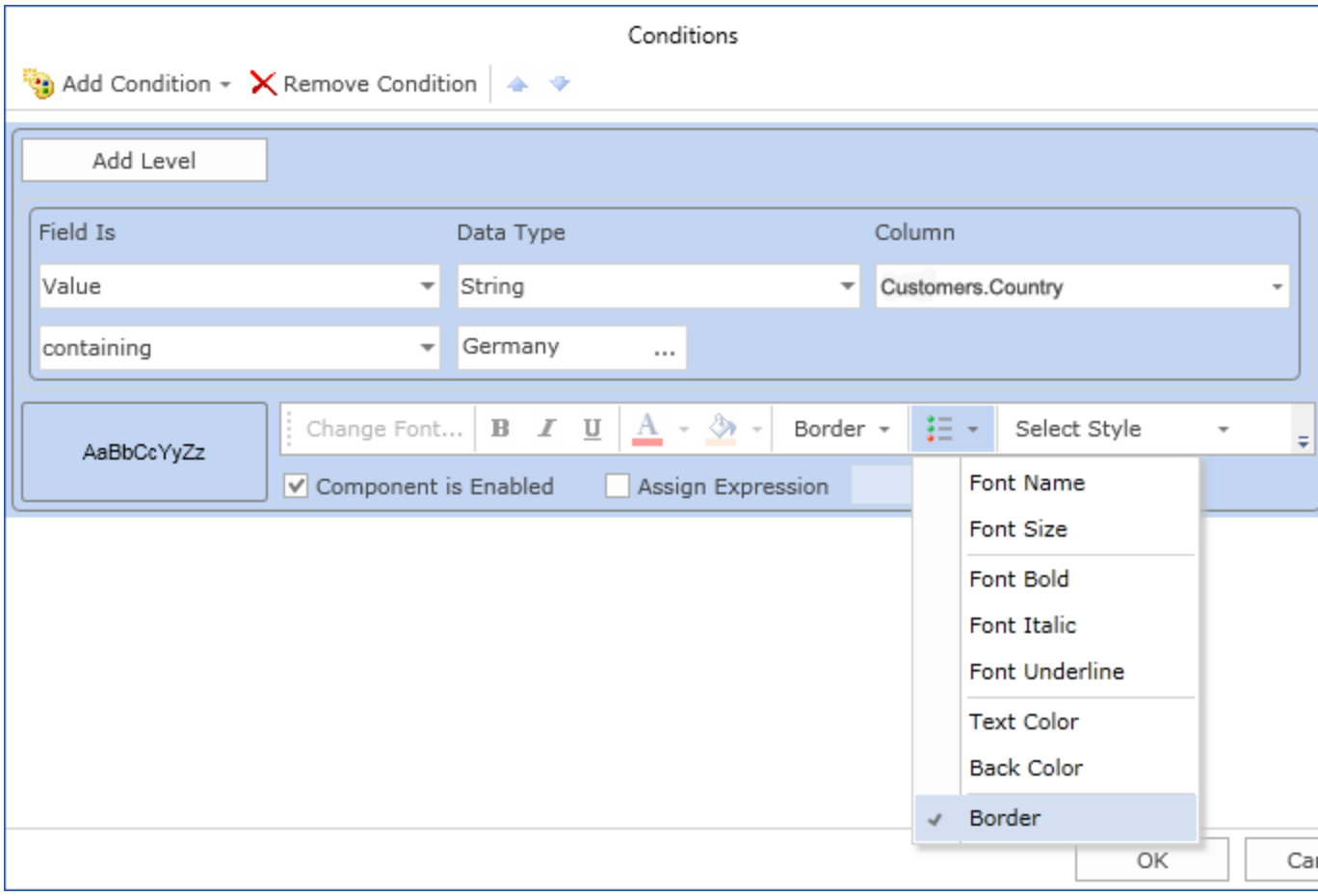


After making changes in the report template, the report engine will perform conditional formatting of text components, according to the specified parameters. In this case, the borders will be set for the text components that match the specified condition. The picture below shows a page of the rendered report with conditional formatting:

| CompanyName | City | Country |
|---|---|---|
| Alfreds Futterkiste | Berlin | Germany |
| Ana Trujillo Emparedados | México D.F. | Mexico |
| Antonio Moreno Taquería | México D.F. | Mexico |
| Around the Horn | London | UK |
| Berglunds snabbköp | Luleå | Sweden |
| Blauer See Delikatessen | Mannheim | Germany |
| Blondesddsl père et fils | Strasbourg | France |
| Bólido Comidas preparadas | Madrid | Spain |
| Bon app' | Marseille | France |

As can be seen in the picture above, borders of text components of the **Country** column which contain the **Germany** word, will be set.

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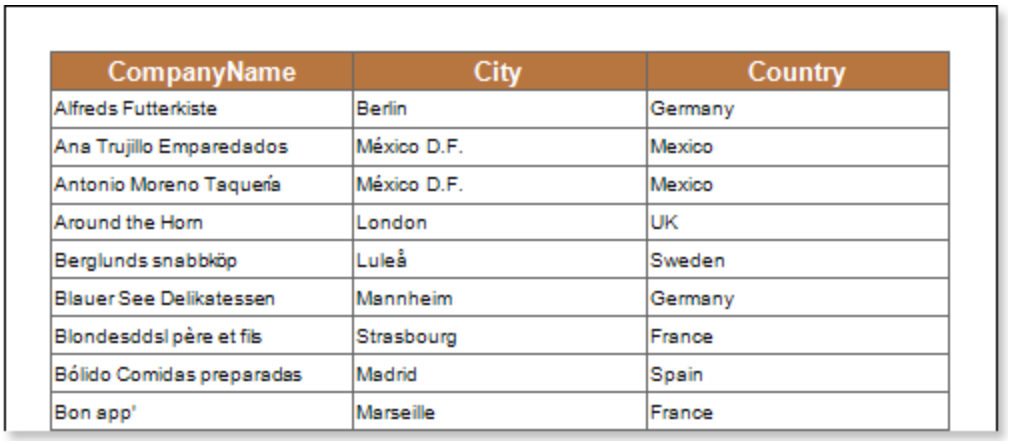
### 5.3.8.9 Enabling Component

Using conditional formatting it is possible to show/hide the text component. The picture below shows a page of a rendered report:



| CompanyName | City | Country |
|---|---|---|
| Alfreds Futterkiste | Berlin | Germany |
| Ana Trujillo Emparedados | México D.F. | Mexico |
| Antonio Moreno Taquería | México D.F. | Mexico |
| Around the Horn | London | UK |
| Berglunds snabbköp | Luleå | Sweden |
| Blauer See Delikatessen | Mannheim | Germany |
| Blondesddsl père et fils | Strasbourg | France |
| Bólido Comidas preparadas | Madrid | Spain |
| Bon app' | Marseille | France |

For example, you can hide the text components which contain a **S** letter in the **Country** column. Select a text component with the **{Customers.Country}** expression, in the **DataBand** and call the **Conditions** editor. Then, you should set a condition: select the **Customers.Country** data column, as the first value, and indicate the **S** letter, as a second value. Also set the **Operation comparison** to the **Beginning with** value. Change the formatting parameters, in this case, uncheck the **Component Is Enabled** check box. The picture below shows the **Conditions** editor dialog box:

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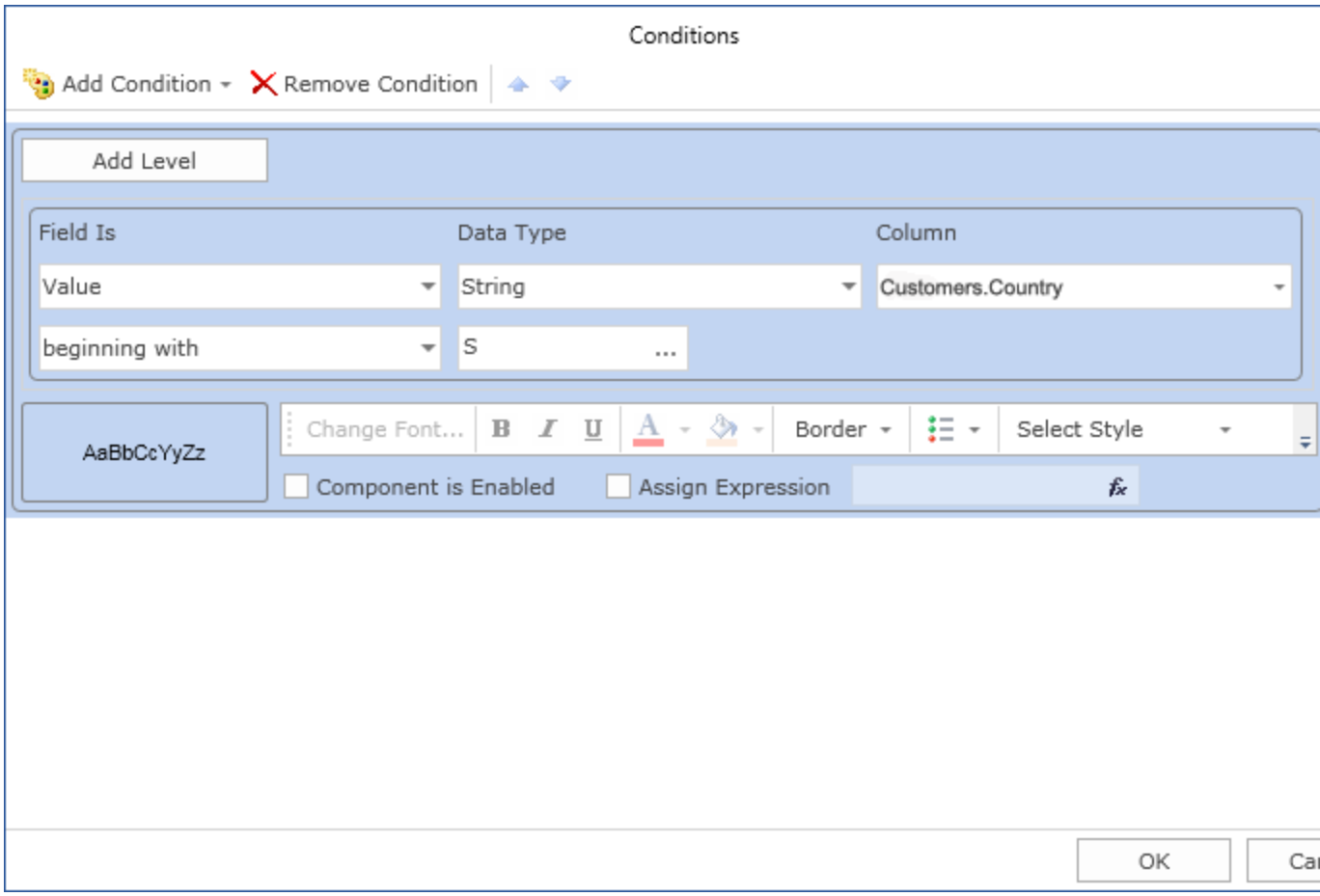
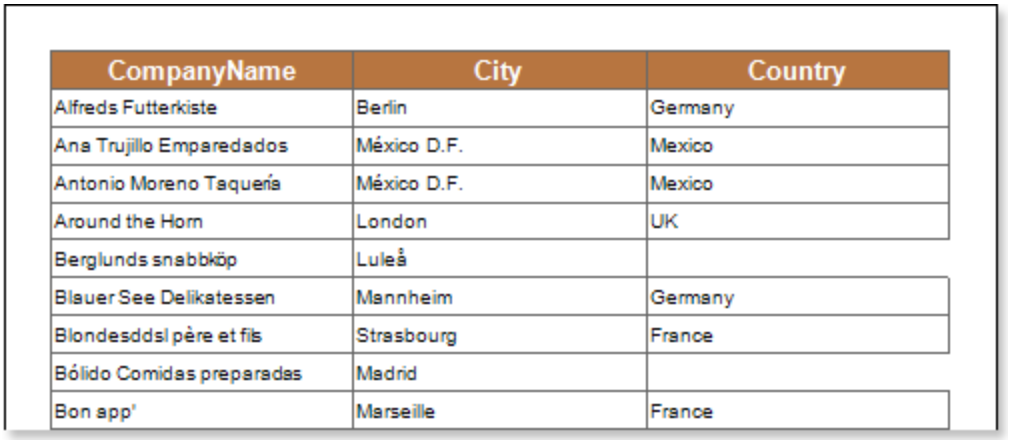



After making changes in the report template, the report engine will perform conditional formatting of text components, according to the specified parameters. In this case, the borders the text components that match the specified condition will be hidden. The picture below shows a page of the rendered report with conditional formatting:



| CompanyName | City | Country |
|---|---|---|
| Alfreds Futterkiste | Berlin | Germany |
| Ana Trujillo Emparedados | México D.F. | Mexico |
| Antonio Moreno Taquería | México D.F. | Mexico |
| Around the Horn | London | UK |
| Berglunds snabbköp | Luleå | |
| Blauer See Delikatessen | Mannheim | Germany |
| Blondesddsl père et fils | Strasbourg | France |
| Bólido Comidas preparadas | Madrid | |
| Bon app' | Marseille | France |

As can be seen in the picture above, the text components of the **Country** column which lines start with the **S** letter are changed.

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### 5.3.8.10 Assigning Expression

Using conditional formatting it is possible, in a text component, to change the text, i.e. replace its textual expression on a text expression, specified in the condition. The picture below shows a page of a rendered report:

| ContactName | Phone | Fax |
|---|---|---|
| Maria Anders | 030-0074321 | 030-0076545 |
| Ana Trujillo | (5) 555-4729 | (5) 555-3745 |
| Antonio Moreno | (5) 555-3932 | |
| Thomas Hardy | (171) 555-7788 | (171) 555-6750 |
| Christina Berglund | 0921-12 34 65 | 0921-12 34 67 |
| Hanna Moos | 0621-08460 | 0621-08924 |
| Frédérique Citeaux | 88.60.15.31 | 88.60.15.32 |
| Martín Sommer | (91) 555 22 82 | (91) 555 91 99 |
| Laurence Lebihan | 91.24.45.40 | 91.24.45.41 |
| Elizabeth Lincoln | (604) 555-4729 | (604) 555-3745 |

For example, it is necessary to assign an expression to all text components, which entries in the **Phone** column will start with the (**5**) characters. Select a text component with the **{Customers.Phone}** expression in the **DataBand** and call the **Conditions** editor. Then, you should set a condition: select the **Customers.Phone** column data, as the first value, and specify the (**5**) character, as a second value. Also set the **Operation comparison** to the **Beginning with** value. Change the formatting options, in this case, enable the **Assign Expression** and specify an expression to which it will be replaced on. For example, specify the "Mexico" expression. The picture below shows the **Conditions** editor dialog box:

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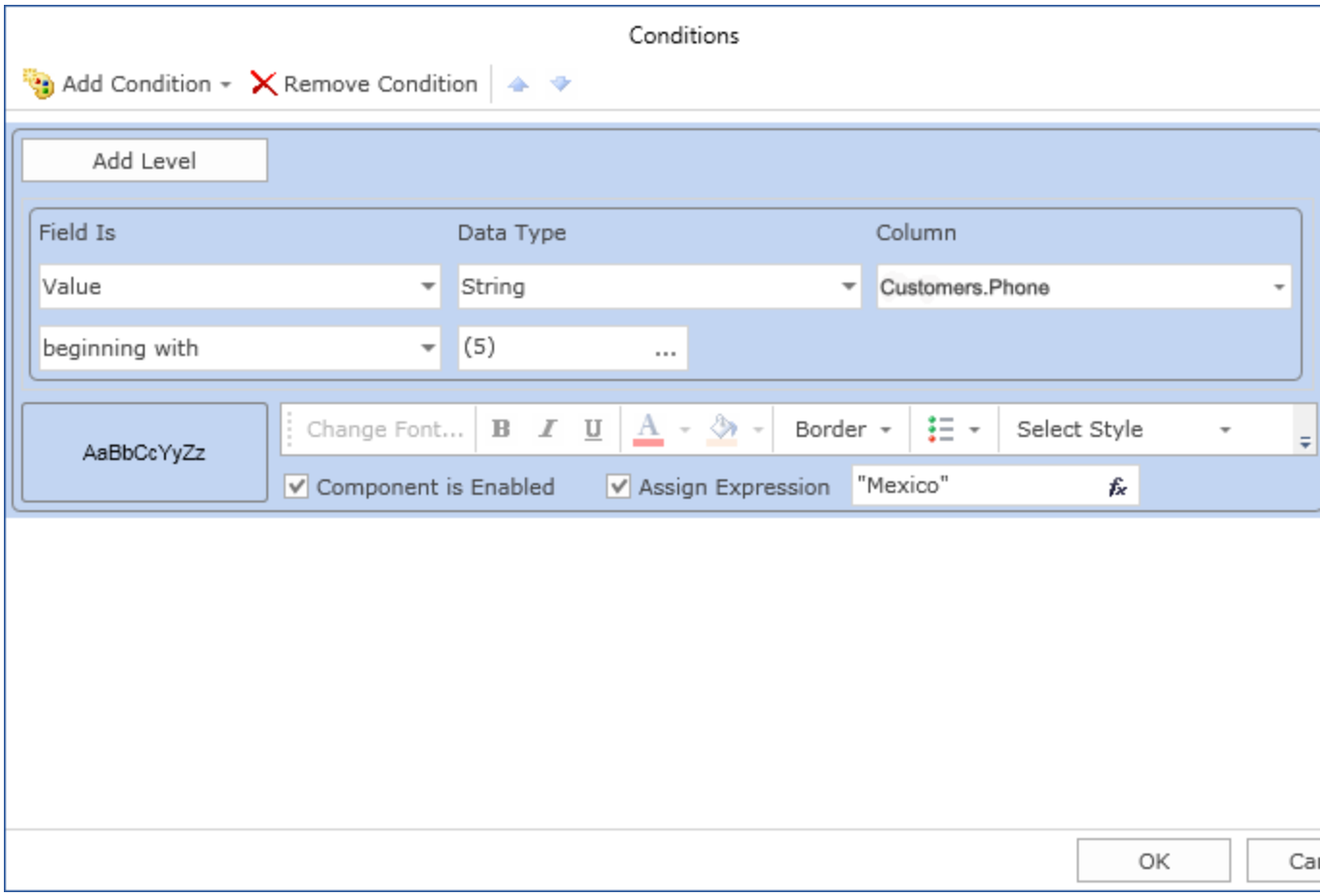


After making changes in the report template, the report engine will perform conditional formatting of text components, according to the specified parameters. In this case, assigning of the text expression in the text components that match the specified condition will be done. The picture below shows a page of the rendered report with conditional formatting:

| ContactName | Phone | Fax |
|---|---|---|
| Maria Anders | 030-0074321 | 030-0076545 |
| Ana Trujillo | Mexico | (5) 555-3745 |
| Antonio Moreno | Mexico | |
| Thomas Hardy | (171) 555-7788 | (171) 555-6750 |
| Christina Berglund | 0921-12 34 65 | 0921-12 34 67 |
| Hanna Moos | 0621-08460 | 0621-08924 |
| Frédérique Citeaux | 88.60.15.31 | 88.60.15.32 |
| Martín Sommer | (91) 555 22 82 | (91) 555 91 99 |
| Laurence Lebihan | 91.24.45.40 | 91.24.45.41 |
| Elizabeth Lincoln | (604) 555-4729 | (604) 555-3745 |

As can be seen in the picture above, assigning of expressions in the text components of the **Phone**

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column which entries start with the (**5**) character will be done.

### 5.3.9 Data Bar Condition

The **Data Bar** condition provides an opportunity to visually display the dynamics of changing values of a data column. The **Data Bar** condition works following principles described below. All the values in the selected data column are analyzed, the minimum and maximum values are determined. Minimum corresponds to 0 percent, maximum - 100 percent. When drawing each component, to which this condition is applied, a value from the selected data column will be specified. Then, the percentage of this value is calculated from the minimum to maximum range. Depending on the percentage, the **Data Bar** is rendered. If the value is close to the maximum, the greater length a data bar would be. If the value is close to or equal to a minimum value, the data bar will be almost unfilled. The picture below shows a page of the report:

| EmployeeID | LastName | FirstName | Country |
|---|---|---|---|
| 1 | Davolio | Nancy | USA |
| 2 | Fuller | Andrew | USA |
| 3 | Leverling | Janet | USA |
| 4 | Peacock | Margaret | USA |
| 5 | Buchanan | Steven | UK |
| 6 | Suyama | Michael | UK |
| 7 | King | Robert | UK |
| 8 | Callahan | Laura | USA |
| 9 | Dodsworth | Anne | UK |

Add the **Data Bar** condition. To do this, select a text component, for example a text component with the **{Employees.EmployeeID}** expression. Add the **Data Bar** expression. Change parameters of the condition. The picture below shows the **Conditions** dialog box:

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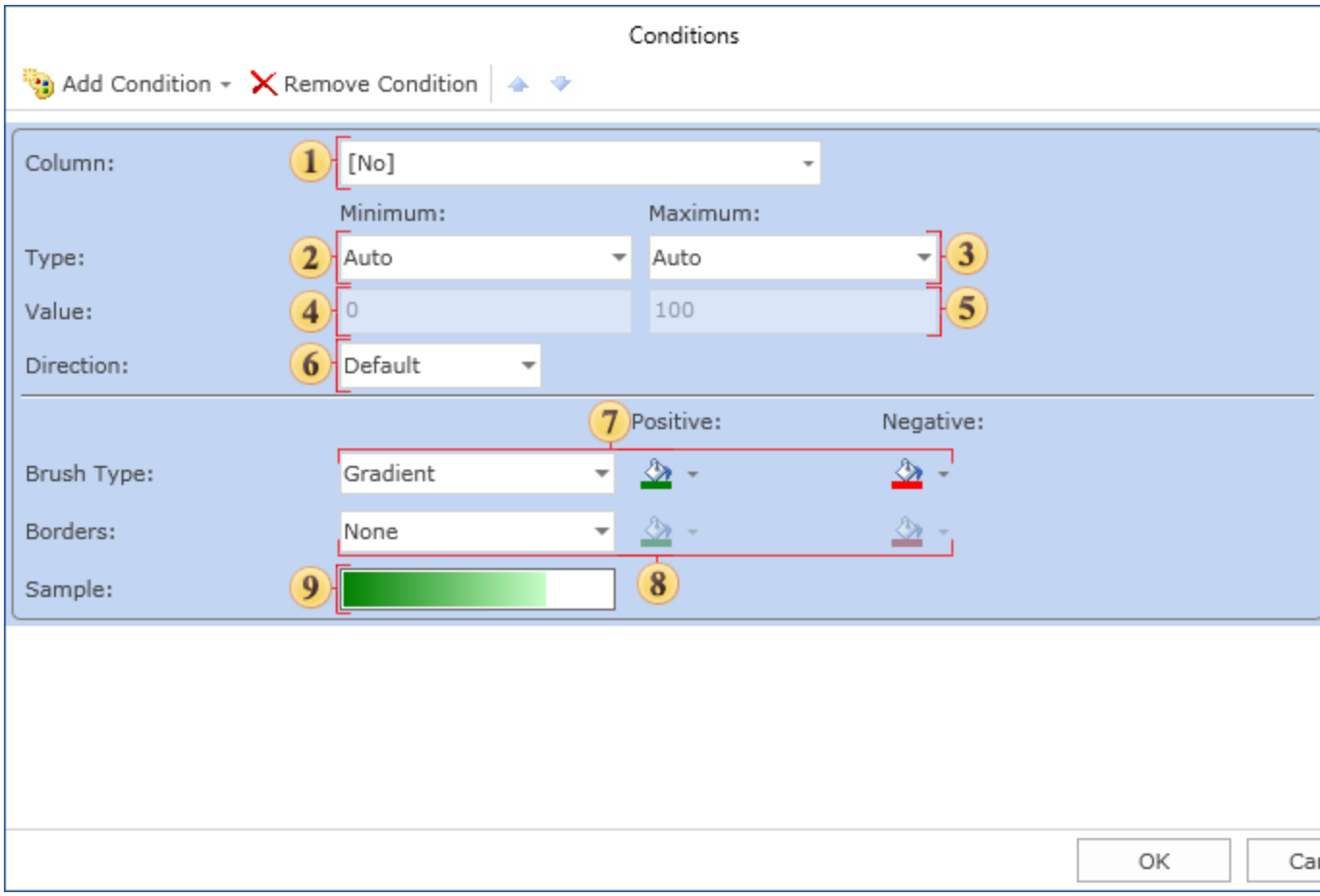


1 The **Column field**. This field indicates the data column from which values will be taken for drawing the Data Bar.

2 The **Type field** is used to change the type of a minimum value. The following types are available: Auto defines the minimum value in the selected data column, and if it is greater than zero, then reset to zero; Percentage is used to specify a minimum value as a percentage, the Value provides an opportunity to specify a minimum value as a numerical value, Minimum defines the minimum value in the selected data column and resets it to null.

3 The **Type field** is used to change the type of a maximum value. The following types are available: Auto defines the minimum value in the selected data column, and if it is less than zero, then reset to zero; Percentage is used to specify a maximum value as a percentage, the Value provides an opportunity to specify a maximum value as a numerical value, Maximum defines the maximum value in the selected data column and resets it to null.

4 The **Value field** for a minimum value.

5 The **Value field** for a maximum value.

6 The **Direction field** is used to change the direction of drawing the Data Bar. The following directions are available: Left to Right, Right to Left, Default defines the direction of the Data Bar, depending on the Right to Left property of the text component.

7 The **Data Bar** parameters include: the Brush Type is used to choose the brush type (gradient or solid); the Positive field is used to change the color a Data Bar for positive values; the Negative field is used to change the color a Data Bar for negative values.

8 The **Borders** parameter include: the Borders field is used to choose the type of a border (none or

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solid); the Positive field is used to change the border color a Data Bar for positive values; the Negative field is used to change the border color a Data Bar for negative values.
9 The **Sample field** shows an example of a Data Bar.

After making changes in the report template, the report engine will perform conditional formatting of text components, according to the specified parameters. The picture below shows a page of the rendered report with conditional formatting:

| EmployeeID | LastName | FirstName | Country |
|---|---|---|---|
| 1 | Davolio | Nancy | USA |
| 2 | Fuller | Andrew | USA |
| 3 | Leverling | Janet | USA |
| 4 | Peacock | Margaret | USA |
| 5 | Buchanan | Steven | UK |
| 6 | Suyama | Michael | UK |
| 7 | King | Robert | UK |
| 8 | Callahan | Laura | USA |
| 9 | Dodsworth | Anne | UK |

As can be seen from the picture above, the EmployeeID value includes the numbers from 1 to 9, where 1 is the minimum value, and 9 is the maximum one. And according to the changing dynamics of values a data bar will be drawn.

**Negative values**
In the column of data from which values are taken when displaying the histogram may be found both positive and negative values. In this case, analysis of all the values in the selected column of data, determined the minimum and maximum values. The minimum value is 0 percent, maximum - 100 percent. Next, we determine a zero, ie beginning from which a histogram of negative and positive values. For example, the minimum value is -1, while the maximum is three, ie percentage of negative values in the absolute values of band reception is 25 percent and 75 percent positive. Hence the beginning, from which will be constructed histogram is 25 per cent of the length of the component from its left border and 75 percent of the length of the component from its right boundary (at the direction of the histogram from left to right). Histogram of negative values will be rendered in a color that is selected in the Negative (Negative), and the histogram of positive values of a color that is selected in the Positive (Positive). The figure below shows an example of a rendered report with negative and positive values:

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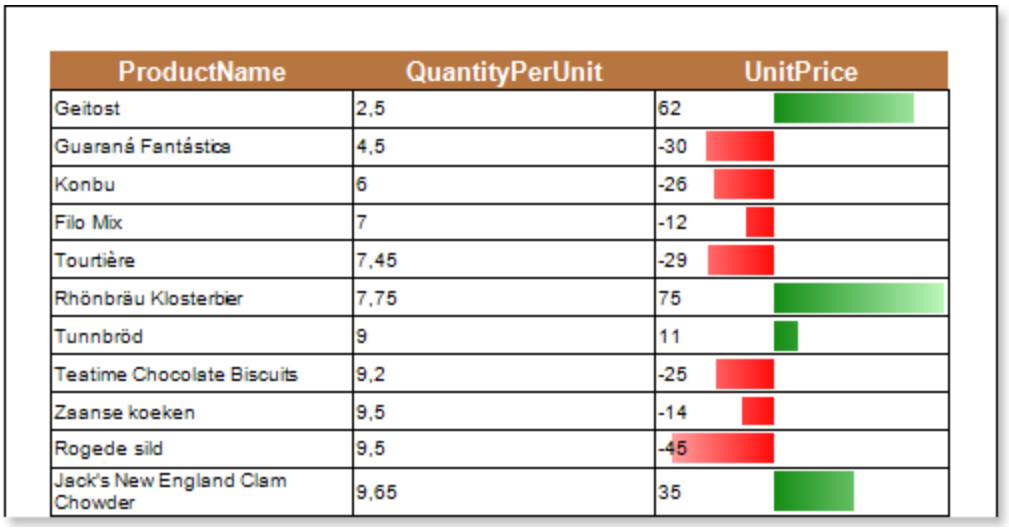
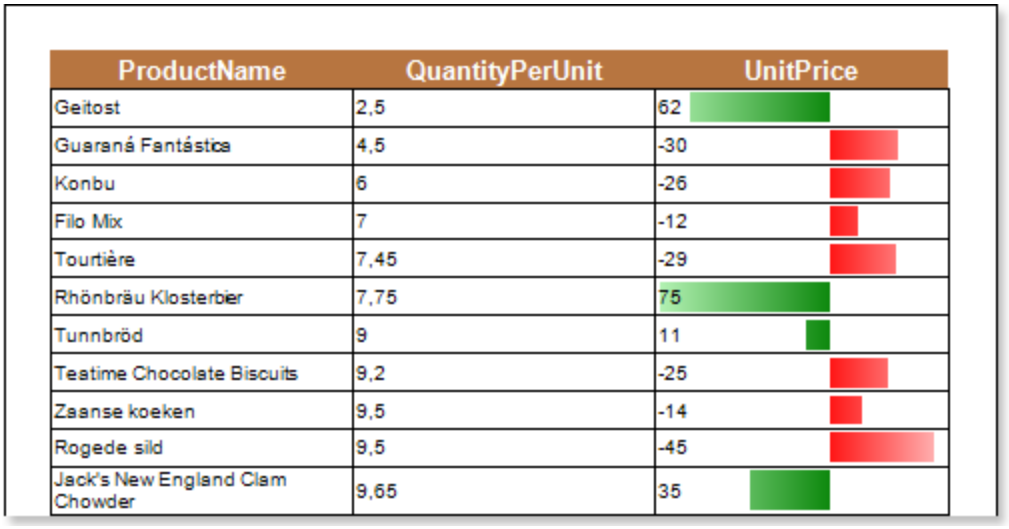


| ProductName | QuantityPerUnit | UnitPrice |
|---|---|---|
| Geitost | 2,5 | 62 |
| Guaraná Fantástica | 4,5 | -30 |
| Konbu | 6 | -26 |
| Filo Mix | 7 | -12 |
| Tourtière | 7,45 | -29 |
| Rhönbräu Klosterbier | 7,75 | 75 |
| Tunnbröd | 9 | 11 |
| Teatime Chocolate Biscuits | 9,2 | -25 |
| Zaanse koeken | 9,5 | -14 |
| Rogede sild | 9,5 | -45 |
| Jack's New England Clam Chowder | 9,65 | 35 |

Also of note: if the parameter direction (Direction) is set to Left to Right (Left to right) will be constructed from the start of drawing to the left edge of the component, ie from right to left, if the parameter direction (Direction) is set to Right to Left (Right to left), the histogram is built from start to draw the right edge of the component, ie, left to right. The figure below shows an example of a rendered report with negative and positive values:



| ProductName | QuantityPerUnit | UnitPrice |
|---|---|---|
| Geitost | 2,5 | 62 |
| Guaraná Fantástica | 4,5 | -30 |
| Konbu | 6 | -26 |
| Filo Mix | 7 | -12 |
| Tourtière | 7,45 | -29 |
| Rhönbräu Klosterbier | 7,75 | 75 |
| Tunnbröd | 9 | 11 |
| Teatime Chocolate Biscuits | 9,2 | -25 |
| Zaanse koeken | 9,5 | -14 |
| Rogede sild | 9,5 | -45 |
| Jack's New England Clam Chowder | 9,65 | 35 |

As can be seen in the picture above, the background color depending on the value in a color scale is changed in text components.

## 5.3.10 Color Scale Condition

The **Color Scale Condition** allows selecting a component with a color in the rendered report, to which will this condition corresponds. The **Color Scale Condition** is working according to the the following principle: if the color scale consists of 2 colors (minimum and maximum), then the minimum and

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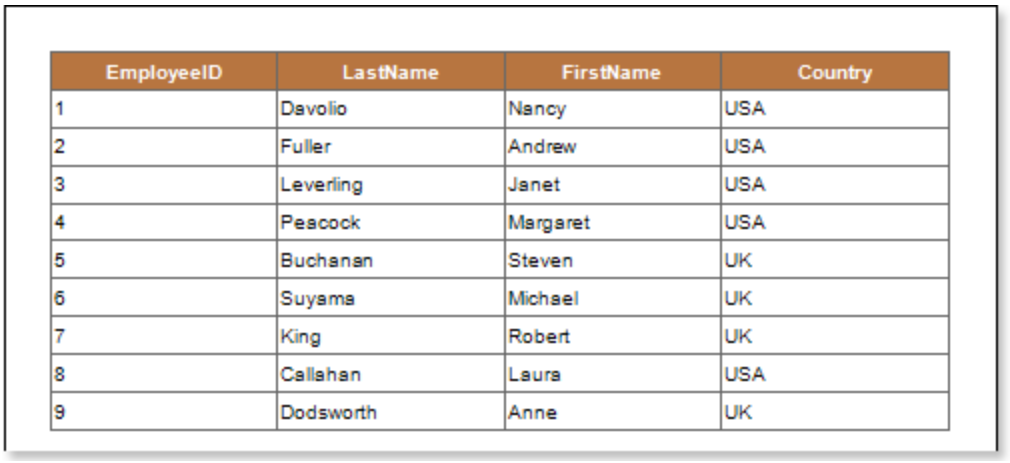
maximum values for selected data columns are specified. Values that correspond to the maximum and minimum values are indicated with colors. For other values, which are taken from selected data columns, the location in the color scale is calculated.Depending on location in color scale, the color is assigned to this value, so the color is assigned to the component. If the minimum value is equal to or less than the specified minimum in the condition, that means it will be a boundary minimum value and will use the color, chosen for the minimum value. If the maximum value in the data column is equal to or greater than the specified maximum in the condition, then it will be a maximum boundary value, and will use the color selected for a maximum value. If the value is in the middle between the minimum and maximum value, then the background color of a component with this value will be an interpolated color for minimum and maximum values. If the color scale consists of 3 values (low, medium, high), then the minimum, medium and maximum values are defined. For each value, which is taken from the selected data column, the position in the color scale is calculated depending on the location of the value and the color is assigned. So the color of the component is changed. The color scale represents a smooth transition between the three colors: the color from minimum to medium, and the color from medium to maximum. The background color of a component with a value that is strictly in the middle between the minimum and average value will be an interpolated color of minimum and medium values. The background color of a component with a value that is strictly in the middle between the average and maximum value will be an interpolated color of medium to maximum values. The picture shows a page of the report:



| EmployeeID | LastName | FirstName | Country |
|---|---|---|---|
| 1 | Davolio | Nancy | USA |
| 2 | Fuller | Andrew | USA |
| 3 | Leverling | Janet | USA |
| 4 | Peacock | Margaret | USA |
| 5 | Buchanan | Steven | UK |
| 6 | Suyama | Michael | UK |
| 7 | King | Robert | UK |
| 8 | Callahan | Laura | USA |
| 9 | Dodsworth | Anne | UK |

Add the **Color Scale Condition**. To do this, select a text component, for example a component with the **{Employees.EmployeeID}** expression. Add a **Color Scale Condition**. Change the parameters of the condition. The picture below shows the **Conditions** dialog:

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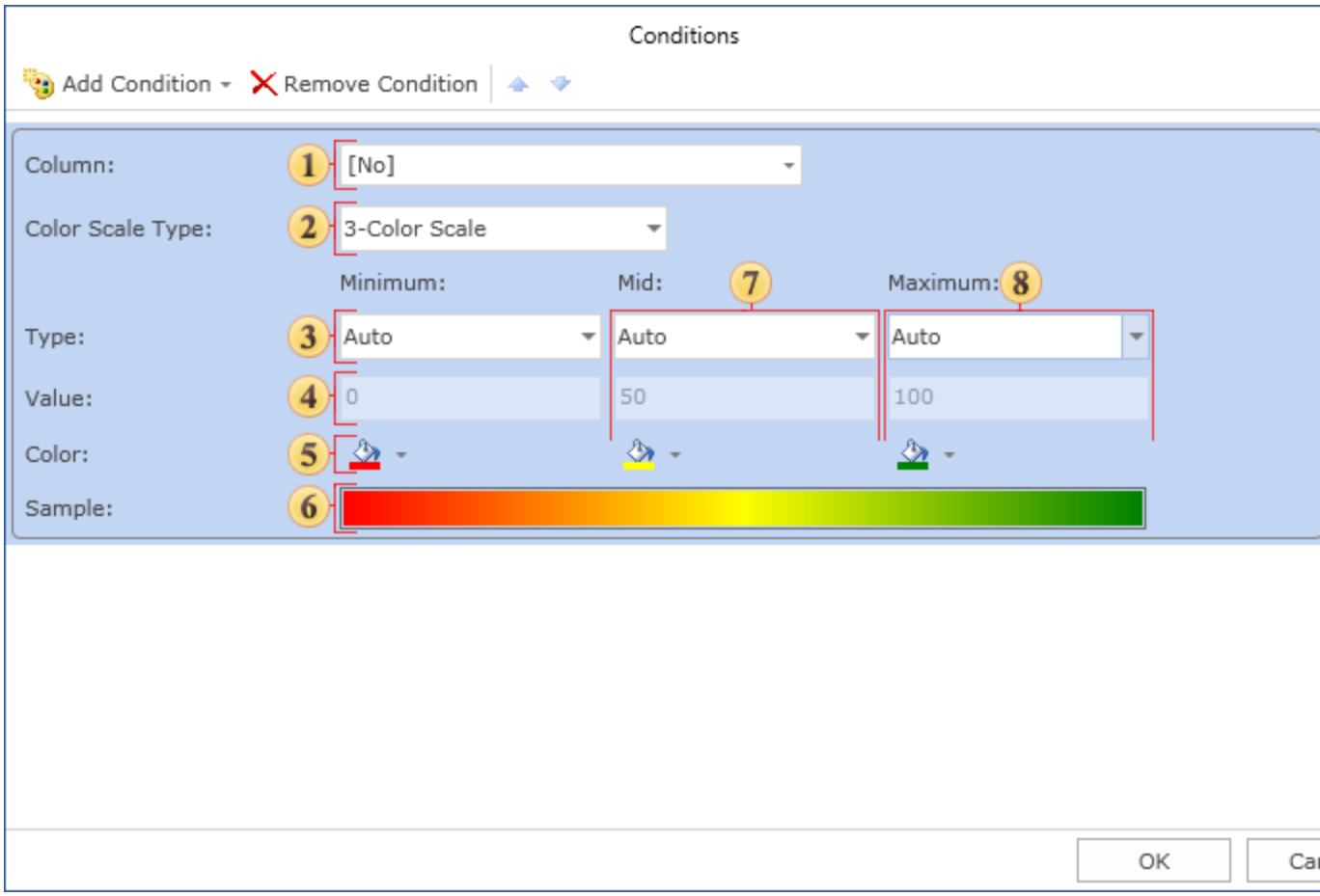
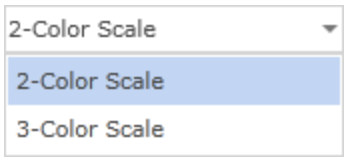
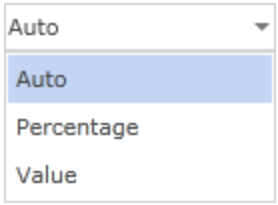



1 The **Column** field. This field indicates the data column from which the value for the condition will be taken;

2 The **Color Scale Type** fields provides an opportunity to choose the type of color scheme: 2-color scales, or 3-color scales. The picture below shows the menu to select the type a of color scale:




3 The **Type** field provides an opportunity to change the type of a value that will be specified in the Value field for a minimum color scale. The picture below shows the menu to select the type of a value:




4 The **Value** field. Used for a minimum color scale;

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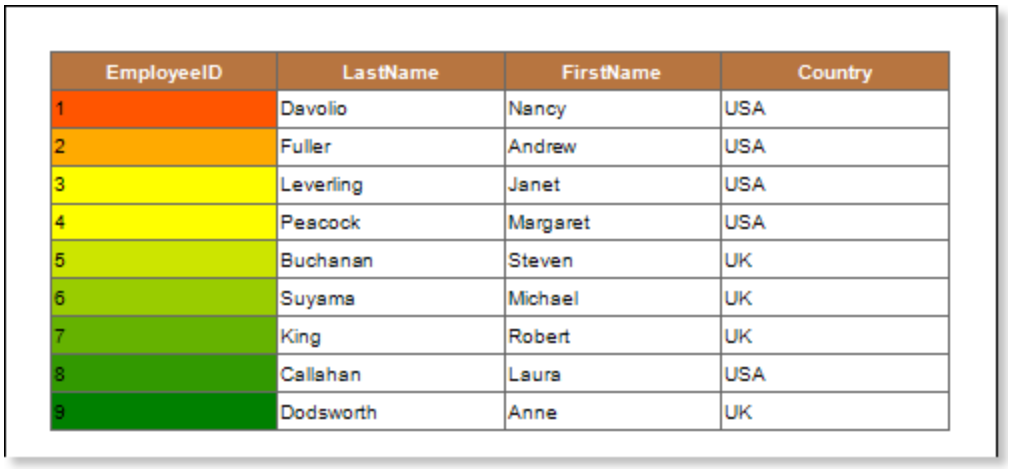
5 The **Color** filed. Used for a minimum color scale;
6 The **Sample** field. Shows a color scale in the report how it will look like from minimum to medium and from medium to maximum. If you select the color scale 2-color scales, then in this field a color gradient from minimum to maximum will be displayed;
7 A group of parameters (Type, Value, Color) of the medium color scale;
8 A group of parameters (Type, Value, Color) with a maximum color scale.

After making changes in the report template, the report engine will perform conditional formatting of text components, according to the specified parameters. In this case, depending on the value of the component, the background of a text component will be changed. The picture below shows a rendered page of the report with conditional formatting:



| EmployeeID | LastName | FirstName | Country |
|---|---|---|---|
| 1 | Davolio | Nancy | USA |
| 2 | Fuller | Andrew | USA |
| 3 | Leverling | Janet | USA |
| 4 | Peacock | Margaret | USA |
| 5 | Buchanan | Steven | UK |
| 6 | Suyama | Michael | UK |
| 7 | King | Robert | UK |
| 8 | Callahan | Laura | USA |
| 9 | Dodsworth | Anne | UK |

As can be seen in the picture above, the background color depending on the value in a color scale is changed in text components.

## 5.3.11 Icon Set Condition

The **Icon Set** condition is used to identify the component with an icon to which a condition is applied. The **Icon Set** works the following way. The minimum and maximum values for all values in the selected data column are defined first. All calculated values are in the range from 0 to 100 percent. A group of icons is selected. Then, the condition and boundary values (for example 33 per cent and 67 per cent) for each icon are set. If, for example, a group of three icons is selected, each of these selected icons have a subrange. In this case, each of the icons has subrange in 33 percent (from 0 to 33, from 33 to 67, from 67 to 100). This allows you to mark a component with an appropriate icon depending on the value. The picture below shows a page of the report:

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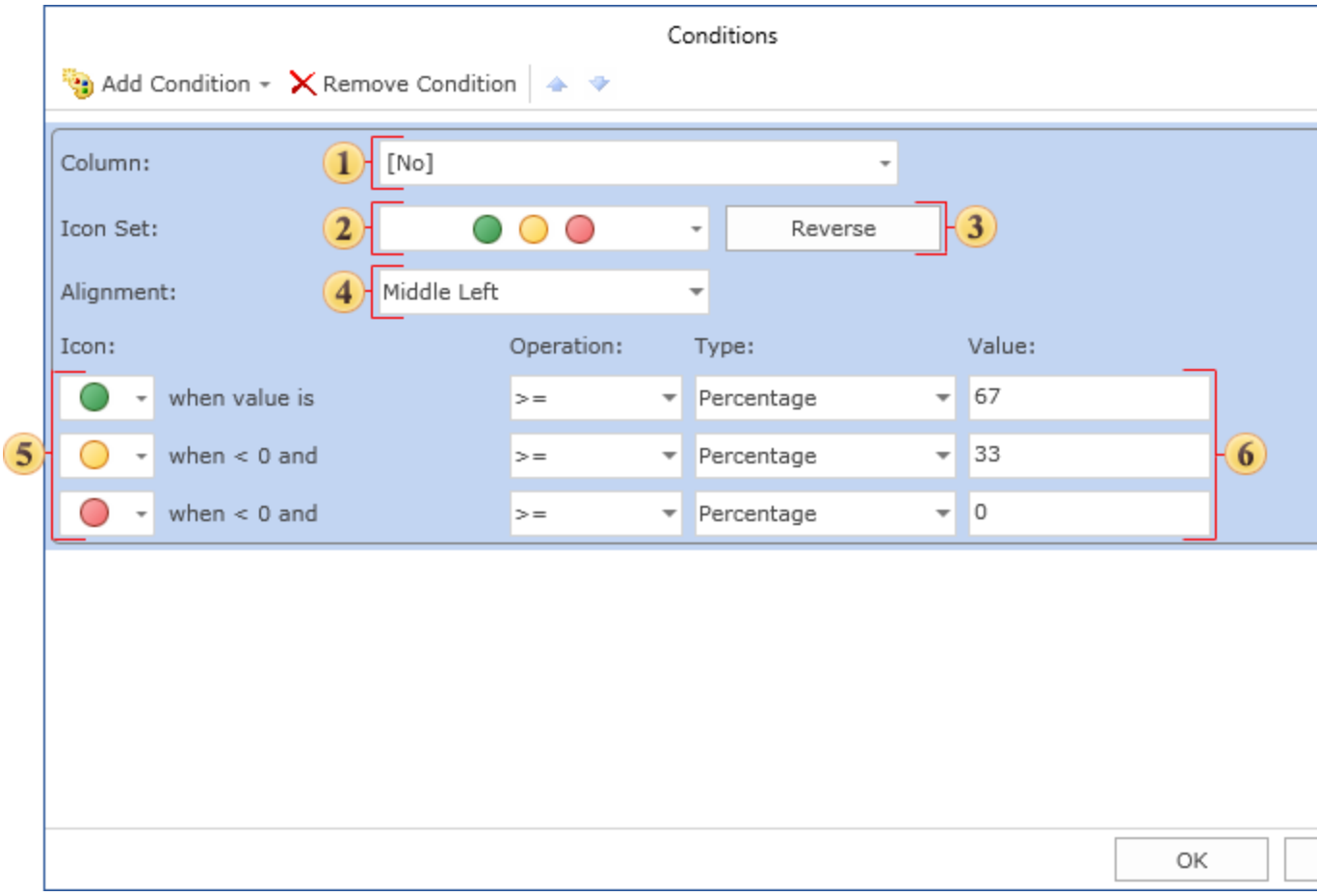
| EmployeeID | LastName | FirstName | Country |
|---|---|---|---|
| 1 | Davolio | Nancy | USA |
| 2 | Fuller | Andrew | USA |
| 3 | Leverling | Janet | USA |
| 4 | Peacock | Margaret | USA |
| 5 | Buchanan | Steven | UK |
| 6 | Suyama | Michael | UK |
| 7 | King | Robert | UK |
| 8 | Callahan | Laura | USA |
| 9 | Dodsworth | Anne | UK |

Add an **Icon Set** condition. To do this, select a text component, for example a component with the **{Employees.Country}** expression. Add the **Icon Set** condition. Change the parameters of the condition. The picture below shows the **Conditions** dialog:




1 The **Column** field. This field is used to choose a data column from which values for the condition will be taken. For example, choose the **{Employees.EmployeeID}** data column;
2 A menu used for selecting a group of icons. The picture below shows the menu of selecting icons:

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3 The **Reverse** button is used to change the location of icons in reverse order. The order of the icons is displayed in the 5 Icon field.

4 The **Alignment** field is used to align icons in text components. The picture below shows the Alignment menu options:

5 The **Icon** field shows the order of icons, and provides an opportunity to change the icon for each value in the report;

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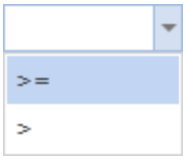
6 A sub-condition, includes: the Operation, Type, and Value fields. In this case, this is the first sub-condition. The Operation field is used to change the type of operation of the first sub-condition. The picture below shows the operations menu:

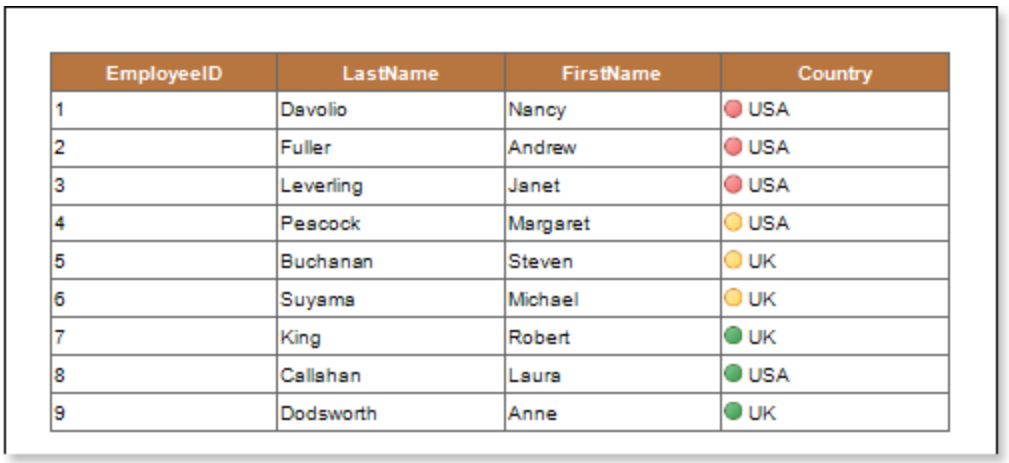



The Type field is used to change the type of a value of the first sub-condition. There are two values: Percentage and Value. The picture below shows the menu to select the type of a value:

In the Value filed the value of a sub-condition is indicated.

7 A **sub-condition** includes: the Operation, Type, and Value fields. In this case, it is the second sub-condition.

After making changes in the report template, the report engine will perform conditional formatting of text components, according to the specified parameters. In this case, the appropriate icon for a text component will be applied. The picture below shows a page of the rendered report with conditional formatting:



| EmployeeID | LastName | FirstName | Country |
|---|---|---|---|
| 1 | Davolio | Nancy | USA |
| 2 | Fuller | Andrew | USA |
| 3 | Leverling | Janet | USA |
| 4 | Peacock | Margaret | USA |
| 5 | Buchanan | Steven | UK |
| 6 | Suyama | Michael | UK |
| 7 | King | Robert | UK |
| 8 | Callahan | Laura | USA |
| 9 | Dodsworth | Anne | UK |

As can be seen in the picture above, the icon depending on the value of a condition will be applied to each text component.

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# 5.4 Output Text Parameters

Stimulsoft Reports has a number of ways for handling, processing and showing a text.

The following components to display the text are:
✓ **Text** is the basic component to output text in the report. The component supports a large number of different settings, processing and displaying text;
✓ **RichText** is a component used to output of an RTF text;
✓ **Text in Cells** is a special component to output a text in a cell.

The text component can contain a simple text, and expression. Whether it is a calculation of an expression, or just a reference to a data column. Text components can be placed on other components, or directly on the report page. But no other components can be put into the text component.

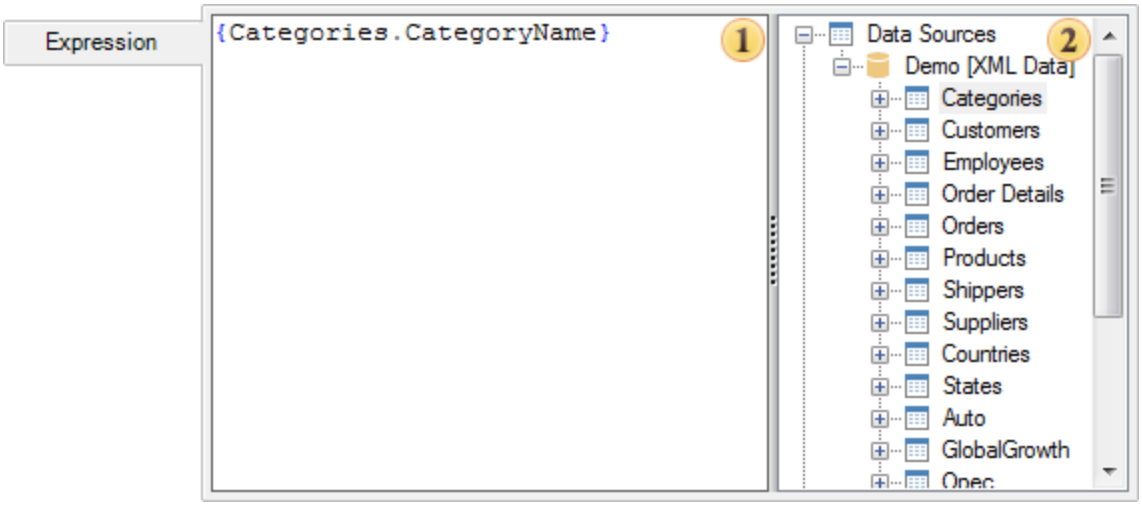
The **Text** component abilities will reviewed in next articles.

## 5.4.1 Text Editor

Editing text components can be done in the **Text Editor**. This editor contains several tabs in which you can change an expression of the text component, select a column, system variable, specify the calculation results.

The tab **Expression**

In the tab **Expression**, you can specify a text, expression, reference to any item in the data dictionary:




This tab has the following panels:
1 The panel **Text** where you can directly specify a text of the expression, reference to an item in the data dictionary.
2 The panel **Data Dictionary** contains items of a report data dictionary. It also supports Drag and Drop of items from the panel 2 to the panel 1. At the same time, a reference will be automatically generated on the data dictionary item. In the picture above you see that the expression **{Categories.**

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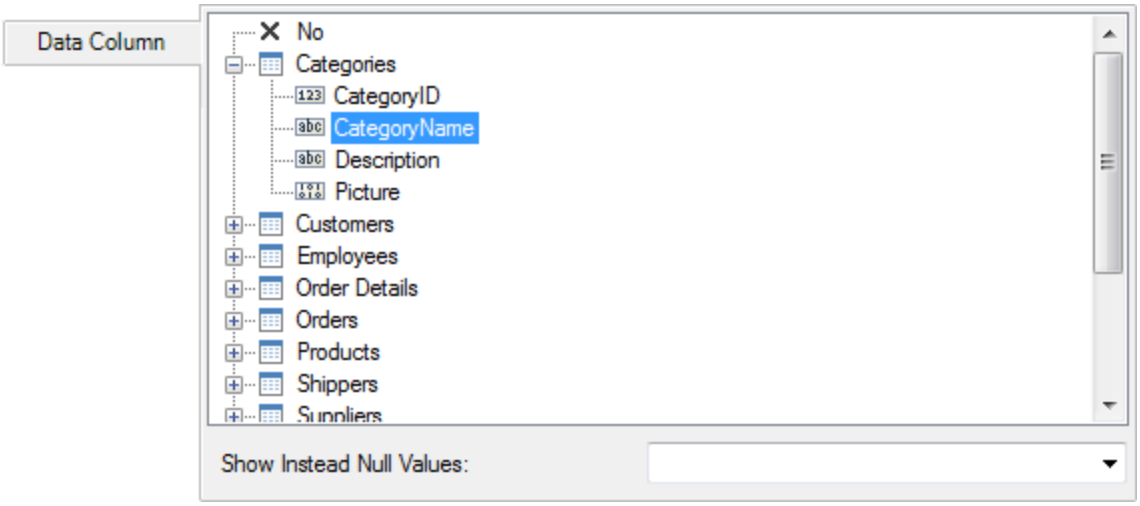
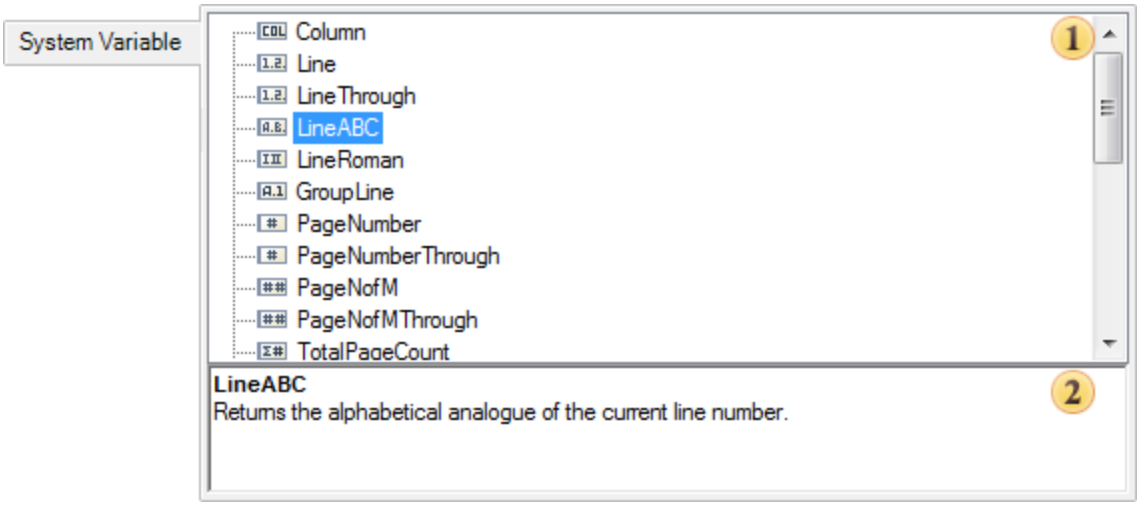
**CategoryName}** is a reference to the description of the data columns **CategoryName** (data source **Categories**) in the report data dictionary.

The tab **Data Column**




This tab is represented by a single panel, which displays only the data columns from the Dictionary. When you select a column, an expression will be formed. This expression is a reference to the description of this column in the report data dictionary. Also on this tab you may find parameter **Show Instead Null Values**, using which you can specify the characters to be displayed instead of the zero values of selected data columns.

The tab **System Variable**




This tab has the following panels:
1 The panel **System Variable**. This panel displays all the system variables of the data dictionary. A system variable is selected here, which will form the reference in the text component.
2 The panel **Descriptions**. This panel displays a description of the selected variable.

The tab **Summary**

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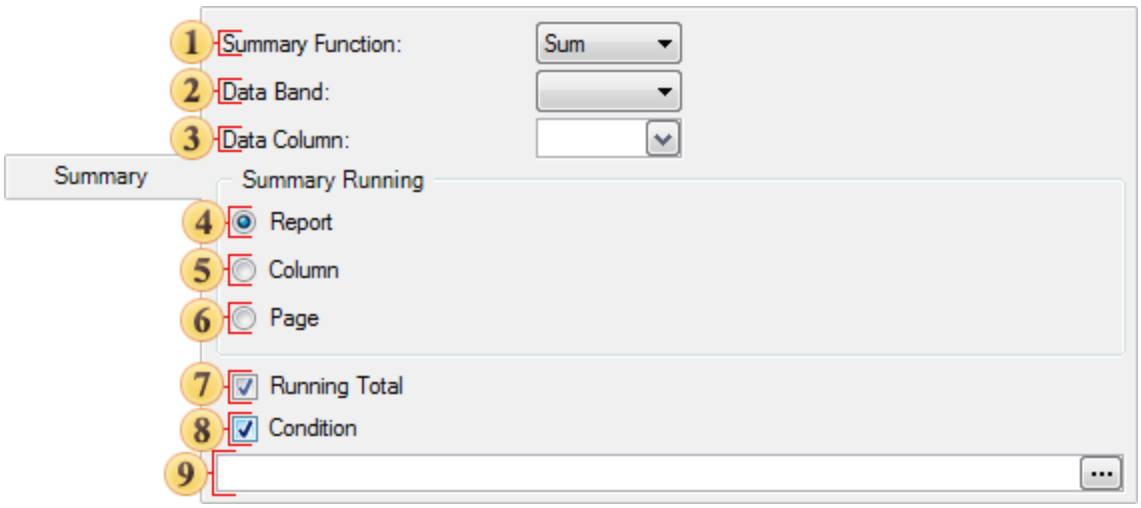
On this tab, you can create an expression that calculates summary. The result of it will be displayed in this text component:




1 In this drop-down list you may determine the type of an aggregate function (operation) to calculate the summary.
2 In this drop-down list you can select the data band by which the summary will be calculated.
3 This list defines the data column, the values of which will be calculated totals.
4 This radio button sets the calculation function for the entire report. The value of the function in the any place of the report will be the same.
5 This radio button sets the calculation of the functions of the data column.
6 This radio button sets the calculation of the function by a report page. On each report page the total value will be calculated only on the page.
7 The checkbox sets the calculation mode with the running total. Each subsequent result includes all the previous ones.
8 The checkbox Condition allows you, when calculating totals, to take into account the value only when executing a certain condition.
9 The field is used for the condition expressions. Available when the checkbox Condition is enabled.

## 5.4.2 Multiline Text

If the text cannot be put on one line it will be trimmed by default. If it is required to put a text on some lines, then you should set the word wrap. You should set the **TextOptions.WordWrap** property of the **Text** component to **true**. When the text is wrapped on a new line, vertical and horizontal alignments are used.

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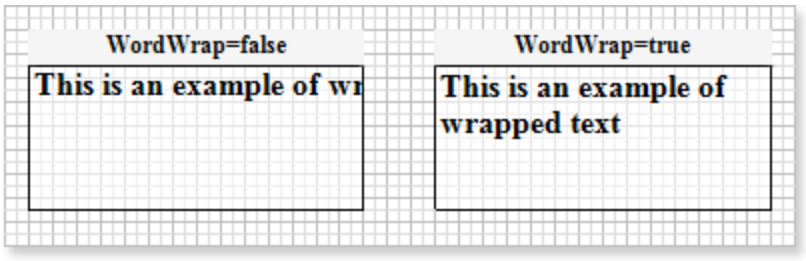


### 5.4.3 Trimming in the End of Text Line

If there is not enough space to put whole text line in the text component, then, using the **TextOptions. Trimming** property, it is possible to customize text trimming. It has the following values:

**None** - the text is trimmed strictly by the edge of a text component or, if it is a multiline text, by the last visible word;

**Character** - the line is trimmed after the last visible character;

**Word** - the line is trimmed by the last visible word;

**Ellipsis Character** – last characters of a word are changed on omission points;

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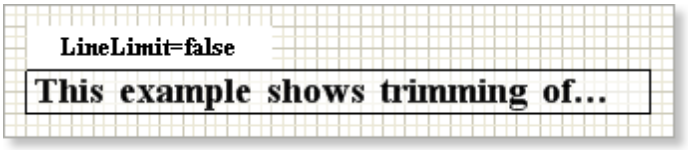
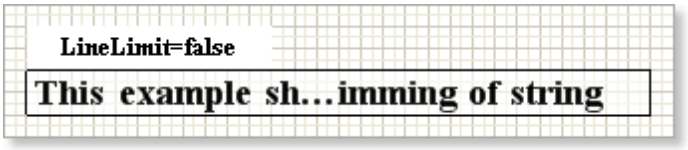
**Ellipsis Word** - omission points are added after the last visible word;

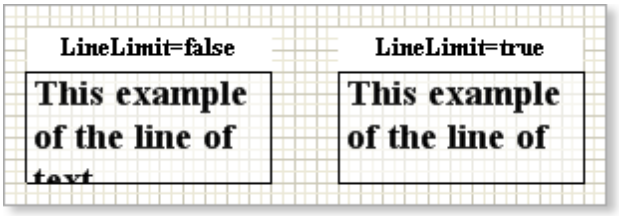



**Ellipsis Path** - the middle of a line is changed to dots so as the beginning and the end of a text line can be visible.




### 5.4.4 Prevent Showing Incompletely Visible Lines

Often it is necessary to output text and do not show vertically trimmed lines on the bottom of a component. If to set the **LineLimit** property to **true**, then only full lines will be output. Absence of additional line may change the word wrap.




### 5.4.5 Lines of Underlining

If it is necessary to underline the **Text** component with horizontal lines, then it is possible to use the **LinesOfUnderline** property of the text component. Using this property it is possible to select style of underlining. If to select the **None** style, then there will not be any underlining.

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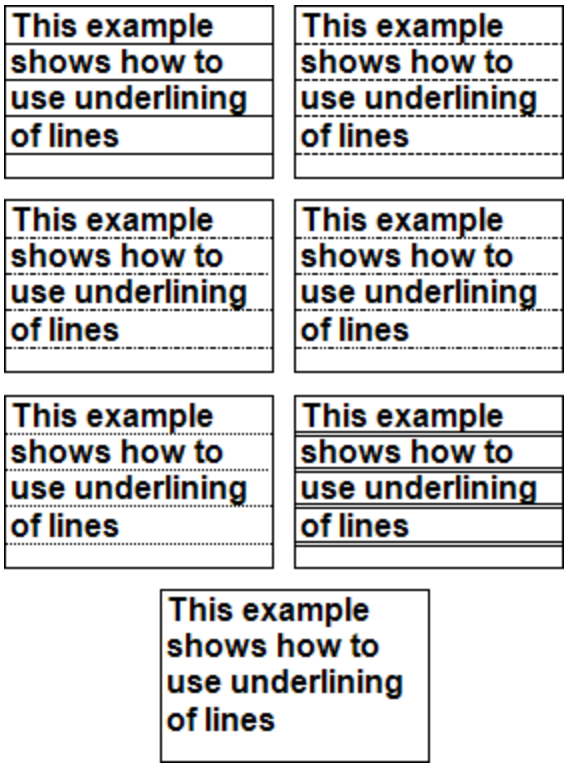
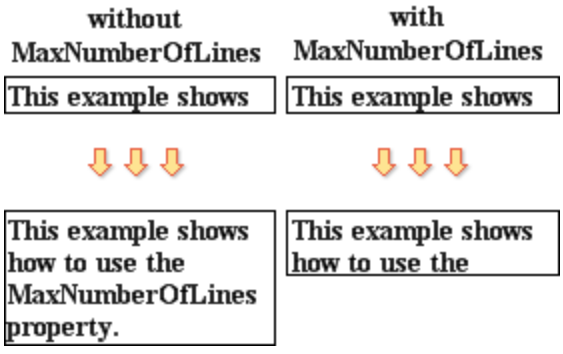

This example shows how to use underlining of lines
This example shows how to use underlining of lines
This example shows how to use underlining of lines
This example shows how to use underlining of lines
This example shows how to use underlining of lines
This example shows how to use underlining of lines
This example shows how to use underlining of lines

## 5.4.6 Maximal Number of Lines

How to make the **Text** component, when increasing the vertical size, increase it on the maximal number of horizontal lines? Use the **MaxNumberOfLines** property. By default, this property is equal in zero and the component will be increased vertically. The component increasing is limited in page size. If you set the value of this property in 5, then, when increasing the vertical size, it will be increased in 5 horizontal lines.


without MaxNumberOfLines
with MaxNumberOfLines
This example shows
This example shows
This example shows how to use the MaxNumberOfLines property.
This example shows how to use the

## 5.4.7 Text Rotation

Set the angle of the text rotation using the **Angle** property of the **Text** component. The angle of the text is given in degrees anticlockwise.

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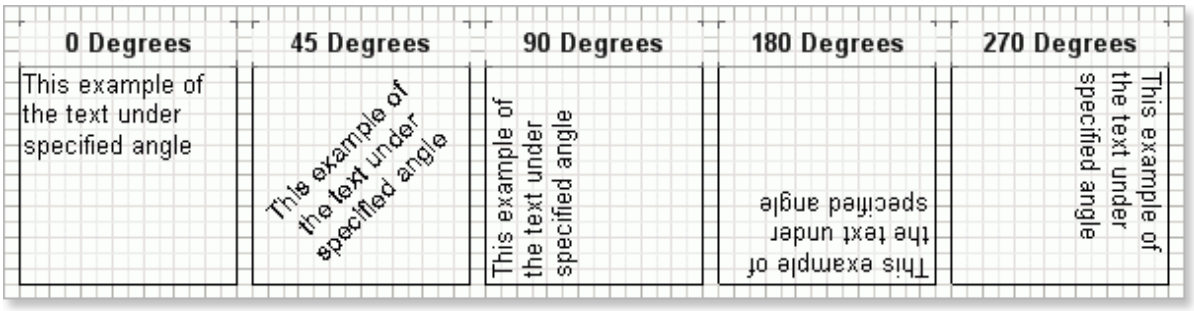
0 Degrees
This example of the text under specified angle
45 Degrees
This example of the text under specified angle
90 Degrees
This example of the text under specified angle
180 Degrees
This example of the text under specified angle
270 Degrees
This example of the text under specified angle

## 5.4.8 Processing Duplicates

In many reports there is a necessity to join a few **Text** components in one which contain duplicated values. The **ProcessingDuplicates** property is used for this. It should be set to **true**.

See the picture below how repeated text values are joined.

In many reports, If these components contain duplicate values, then it is necessary to combine some **Text** components in one. To combine duplicate values it is necessary to use the **ProcessingDuplicates** property.

The picture below shows an example of duplicate text values.

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| | | | | |
|---|---|---|---|---|
| **Beverages** | Chai | 10 boxes x 20 bag | 18,00p. | 39,00 |
| | Chang | 24 - 12 oz bottles | 19,00p. | 17,00 |
| | Chartreuse verte | 750 cc per bottle | 18,00p. | 69,00 |
| | Côte de Blaye | 12 - 75 cl bottles | 263,50p. | 17,00 |
| | Guaraná Fantástica | 12 - 355 ml cans | 4,50p. | 20,00 |
| | Ipoh Coffee | 16 - 500 g tins | 46,00p. | 17,00 |
| | Lakkalikööri | 500 ml | 18,00p. | 57,00 |
| | Laughing Lumberjack Lager | 24 - 12 oz bottles | 14,00p. | 52,00 |
| | Outback Lager | 24 - 355 ml bottles | 15,00p. | 15,00 |
| | Rhönbräu Klosterbier | 24 - 0.5 l bottles | 7,75p. | 125,00 |
| | Sasquatch Ale | 24 - 12 oz bottles | 14,00p. | 111,00 |
| | Steeleye Stout | 24 - 12 oz bottles | 18,00p. | 20,00 |
| **Condiments** | Aniseed Syrup | 12 - 550 ml bottles | 10,00p. | 13,00 |
| | Chef Anton's Cajun Seasoning | 48 - 6 oz jars | 22,00p. | 53,00 |
| | Chef Anton's Gumbo Mix | 36 boxes | 21,35p. | 0,00 |
| | Genen Shouyu | 24 - 250 ml bottles | 15,50p. | 39,00 |
| | Grandma's Boysenberry Spread | 12 - 8 oz jars | 25,00p. | 120,00 |
| | Gula Malacca | 20 - 2 kg bags | 19,45p. | 27,00 |
| | Louisiana Fiery Hot Pepper Sauce | 32 - 8 oz bottles | 21,05p. | 76,00 |
| | Louisiana Hot Spiced Okra | 24 - 8 oz jars | 17,00p. | 4,00 |
| | Northwoods Cranberry Sauce | 12 - 12 oz jars | 40,00p. | 6,00 |
| | Original Frankfurter grüne Soße | 12 boxes | 13,00p. | 32,00 |
| | Sirop d'érable | 24 - 500 ml bottles | 28,50p. | 113,00 |
| | Vegie-spread | 15 - 625 g jars | 43,90p. | 24,00 |
| **Confections** | Chocolade | 10 pkgs. | 12,75p. | 15,00 |
| | Gumbär Gummibärchen | 100 - 250 g bags | 31,23p. | 15,00 |
| | Maxilaku | 24 - 50 g pkgs. | 20,00p. | 10,00 |
| | NuNuCa Nuß-Nougat-Creme | 20 - 450 g glasses | 14,00p. | 76,00 |
| | Pavlova | 32 - 500 g boxes | 17,45p. | 29,00 |
| | Schoggi Schokolade | 100 - 100 g pieces | 43,90p. | 49,00 |
| | Scottish Longbreads | 10 boxes x 8 piece | 12,50p. | 6,00 |
| | Sir Rodney's Marmalade | 30 gift boxes | 81,00p. | 40,00 |
| | Sir Rodney's Scones | 24 pkgs. x 4 piece | 10,00p. | 3,00 |
| | Tarte au sucre | 48 pies | 49,30p. | 17,00 |
| | Teatime Chocolate Biscuits | 10 boxes x 12 pie | 9,20p. | 25,00 |
| | Valkoinen suklaa | 12 - 100 g bars | 16,25p. | 65,00 |
| | Zaanse koeken | 10 - 4 oz boxes | 9,50p. | 36,00 |
| **Dairy Products** | Camembert Pierrot | 15 - 300 g rounds | 34,00p. | 19,00 |
| | Flotemysost | 10 - 500 g pkgs. | 21,50p. | 26,00 |
| | Geitost | 500 g | 2,50p. | 112,00 |
| | Gorgonzola Telino | 12 - 100 g pkgs | 12,50p. | 0,00 |
| | Gudbrandsdalsost | 10 kg pkg. | 36,00p. | 26,00 |
| | Mascarpone Fabioli | 24 - 200 g pkgs. | 32,00p. | 9,00 |
| | Mozzarella di Giovanni | 24 - 200 g pkgs. | 34,80p. | 14,00 |
| | Queso Cabrales | 1 kg pkg. | 21,00p. | 22,00 |
| | Queso Manchego La Pastora | 10 - 500 g pkgs. | 38,00p. | 86,00 |

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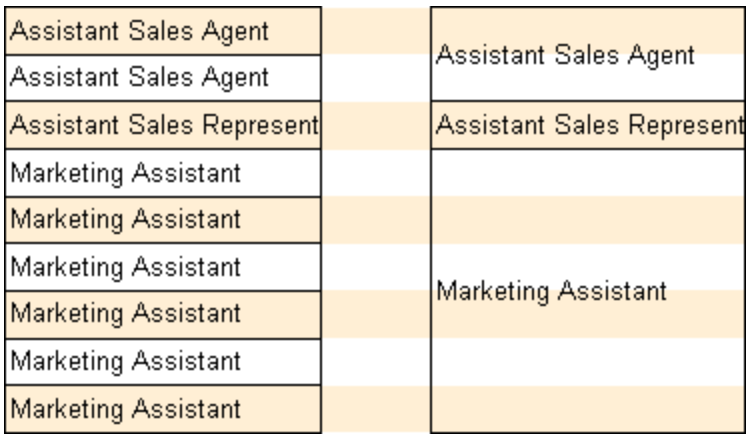
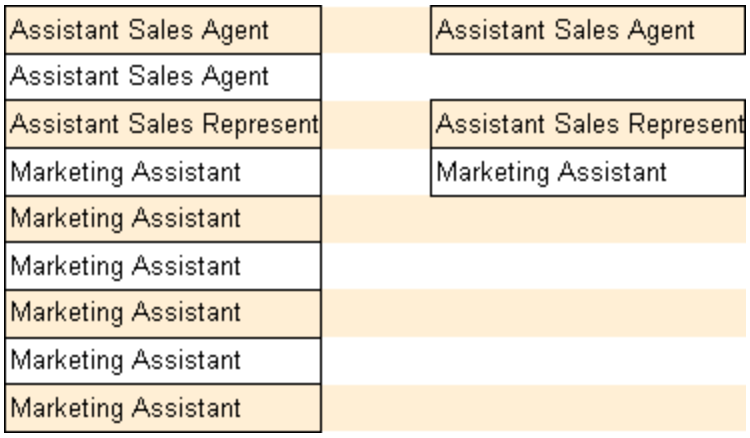
The **ProcessingDuplicates** property makes it possible to combine duplicate values as follows: **Merge, Hide, RemoveText, GlobalMerge, GlobalHide, GlobalRemoveText**. Next, look at examples of this property.

**Merge -** In this mode, the text components with identical values are merged into a single text component.




**Hide -** In this mode, the first text component remains on its place without changing the size. The rest of the text components are removed from the report.




**Remove Text -** In this mode, the first text component remains in place without changing the size. The rest of the text components to remain in their seats, but they removed the text content.

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| | | |
|---|---|---|
| Assistant Sales Agent | | Assistant Sales Agent |
| Assistant Sales Agent | | |
| Assistant Sales Represent | | Assistant Sales Represent |
| Marketing Assistant | | Marketing Assistant |
| Marketing Assistant | | |
| Marketing Assistant | | |
| Marketing Assistant | | |
| Marketing Assistant | | |
| Marketing Assistant | | |

Combining the components with the same value is taken into account in the name of the components of a report template. If suddenly one of the other two will be exactly the same text component with the same text values, but they will have different names, then those components will not be merged. To avoid this limitation you need to use the **GlobalMerge, GlobalHide, GlobalRemoveText**. They worked the same way as described above regimes, but it does not take into account the names of the components.

## 5.4.9 Ignoring Null Values

Often, when the numerical information is printed then it is required to ignore the zero values. In other words it is necessary do not show print them at all. The **HideZeros** property is used for this. It is necessary to set this property to **true**, and the **Text** component will not print zero values. The picture below shows an example without using this property (**left picture**) and using the property (**right picture**).

| HideZeros = false | |
|---|---|
| 9,00$ | 61,00 |
| 33,25$ | 22,00 |
| 39,00$ | 0,00 |
| 97,00$ | 29,00 |
| 24,00$ | 115,00 |
| 32,80$ | 0,00 |
| 123,79$ | 0,00 |

| HideZeros = true | |
|---|---|
| 9,00$ | 61,00 |
| 33,25$ | 22,00 |
| 39,00$ | |
| 97,00$ | 29,00 |
| 24,00$ | 115,00 |
| 32,80$ | |
| 123,79$ | |

## 5.4.10 ReportTo Property

The **ReportTo** property of the **Text** component is used for synchronous output of a message in two text components. The message is specified in the first text component. Then, in this text component, in the **ReportTo** property, the second text component, on which message output will be continued, is specified. If the space in the first component is not enough for the message output, then this message

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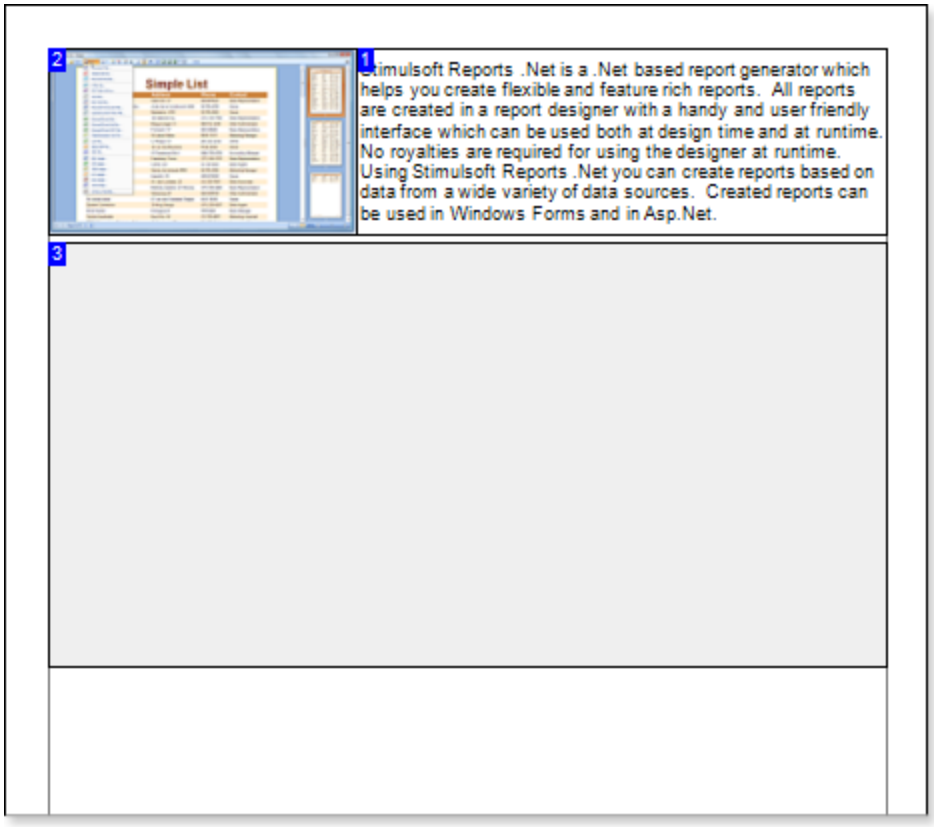
will be continuing to output in the second component. You should consider, that in the first component, whole number of vertical visible lines will be output. In the second component the message will be continuing to output starting with the end of the message of the first component. You should know that for the correct work of this function you have to create the first component and then the second one. If there was another order of creation of components you may use commands of components order.


2
Simple List
1
Stimulsoft Reports .Net is a .Net based report generator which helps you create flexible and feature rich reports. All reports are created in a report designer with a handy and user friendly interface which can be used both at design time and at runtime. No royalties are required for using the designer at runtime. Using Stimulsoft Reports .Net you can create reports based on data from a wide variety of data sources. Created reports can be used in Windows Forms and in Asp.Net.
3

The result can be seen on the picture below.

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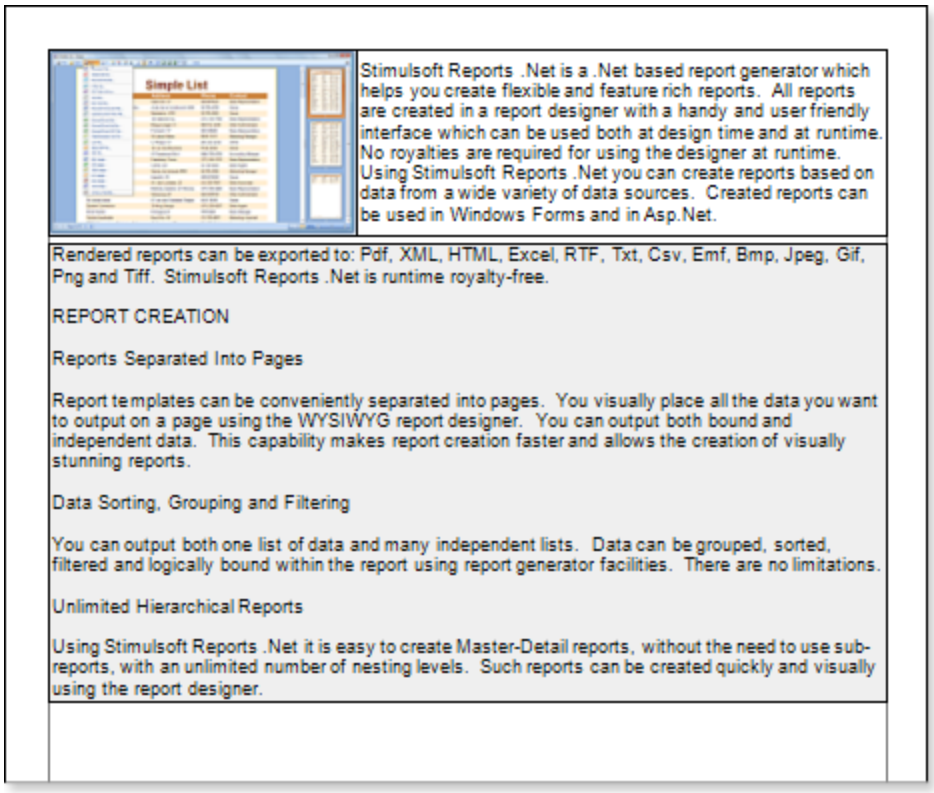
Simple List
Stimulsoft Reports .Net is a .Net based report generator which helps you create flexible and feature rich reports. All reports are created in a report designer with a handy and user friendly interface which can be used both at design time and at runtime. No royalties are required for using the designer at runtime. Using Stimulsoft Reports .Net you can create reports based on data from a wide variety of data sources. Created reports can be used in Windows Forms and in Asp.Net.
Rendered reports can be exported to: Pdf, XML, HTML, Excel, RTF, Txt, Csv, Emf, Bmp, Jpeg, Gif, Png and Tiff. Stimulsoft Reports .Net is runtime royalty-free.
REPORT CREATION
Reports Separated Into Pages
Report templates can be conveniently separated into pages. You visually place all the data you want to output on a page using the WYSIWYG report designer. You can output both bound and independent data. This capability makes report creation faster and allows the creation of visually stunning reports.
Data Sorting, Grouping and Filtering
You can output both one list of data and many independent lists. Data can be grouped, sorted, filtered and logically bound within the report using report generator facilities. There are no limitations.
Unlimited Hierarchical Reports
Using Stimulsoft Reports .Net it is easy to create Master-Detail reports, without the need to use sub-reports, with an unlimited number of nesting levels. Such reports can be created quickly and visually using the report designer.

The **ReportTo** property makes it possible to work only with components that are located on one level - such as a bands.

## 5.4.11 Output Text Only without Taking Expressions into Consideration

How to get an expression to be output "as is", without code processing? Set the **TextOnly** property to **true**, and all the expressions will be output as a text. No calculations will be made.

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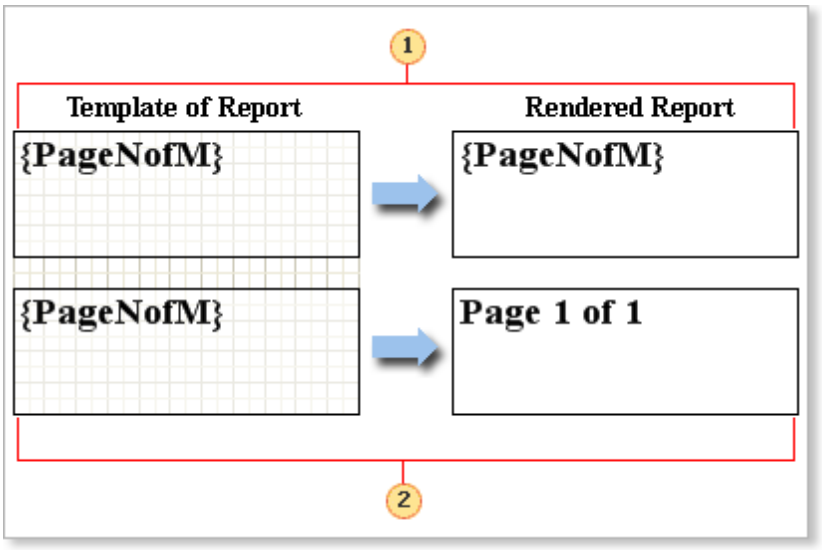



1 The **TextOnly** property is set to **true**. The text is output "as is", without processing of expressions.
2 The **TextOnly** property is set to **false**. The text is output with processing of expressions.

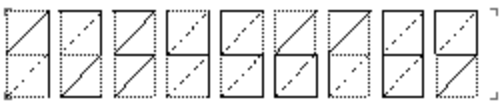
## 5.4.12 Expression Processing in the End of Report Rendering

By default, the report generator immediately processes all expressions which are met in the text. But sometimes it is necessary to process expressions after the report rendering. For example, while report rendering, the calculation of a variable is in process. The result of calculation will be known right after the report rendering, and the result of calculation is to be output on every page of a report. To do this, set the value of the **ProcessAtEnd** property of the **Text** component to **true**.

**Important:** When the content of the text component is processed in the end of the report rendering, the report generator cannot define the true size of the component when it is output. Therefore, auto change of the component size will work with failure.

## 5.4.13 Zip code

Zip code is used for mailing, in order to facilitate sorting. In Stimulsoft Reports we have a special component to display this code. It is called the Zip Code component. It can be placed on components, bands and pages. Setting the values of this component is possible by means of the Code property. This value of the property can be any character, but the Zip Code component can only display numbers. The picture below shows a zip code with numbers "123456789":



In order to increase the font size, change the value of the Size property, specifying the size with numbers, the higher the value is, the thicker is the width of the elements. The picture below shows a zip

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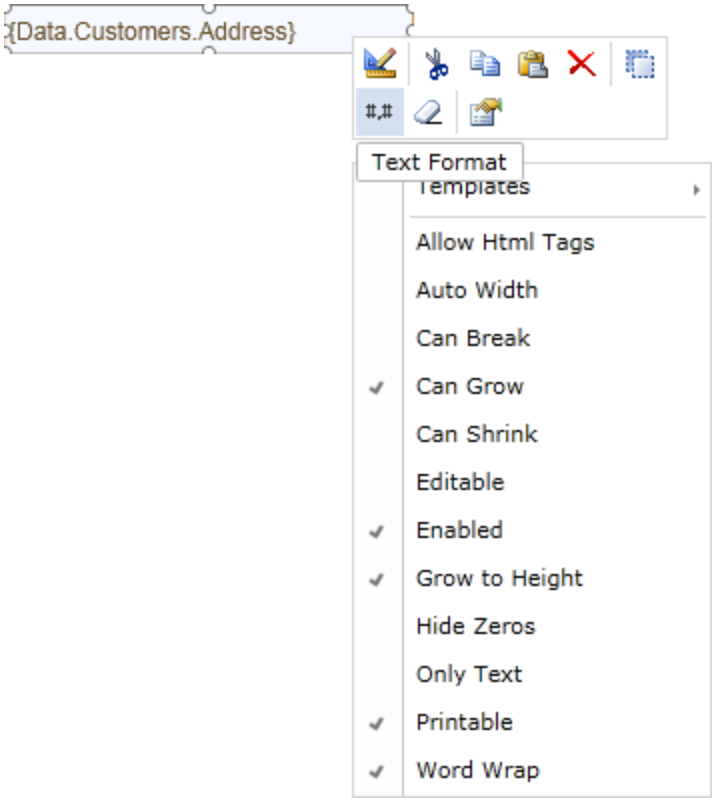
code with an increased width:

## 5.5 Text Formatting

The Text format is a representation of information in the special form (grouping and data output, in order to the specified pattern). Stimulsoft Report contains all necessary instruments required for formatting of all information that will be output. The **Text Format** is the basic tool for formatting a text before output. This tool is a dialog box, which allows setting parameters of format. Text format dialog box is called from the context menu, that appears when right-clicked on the text components, which supports formatting.




Also, using **TextFormat** properties, the dialog box can be called.

The Format window is divided into three parts:

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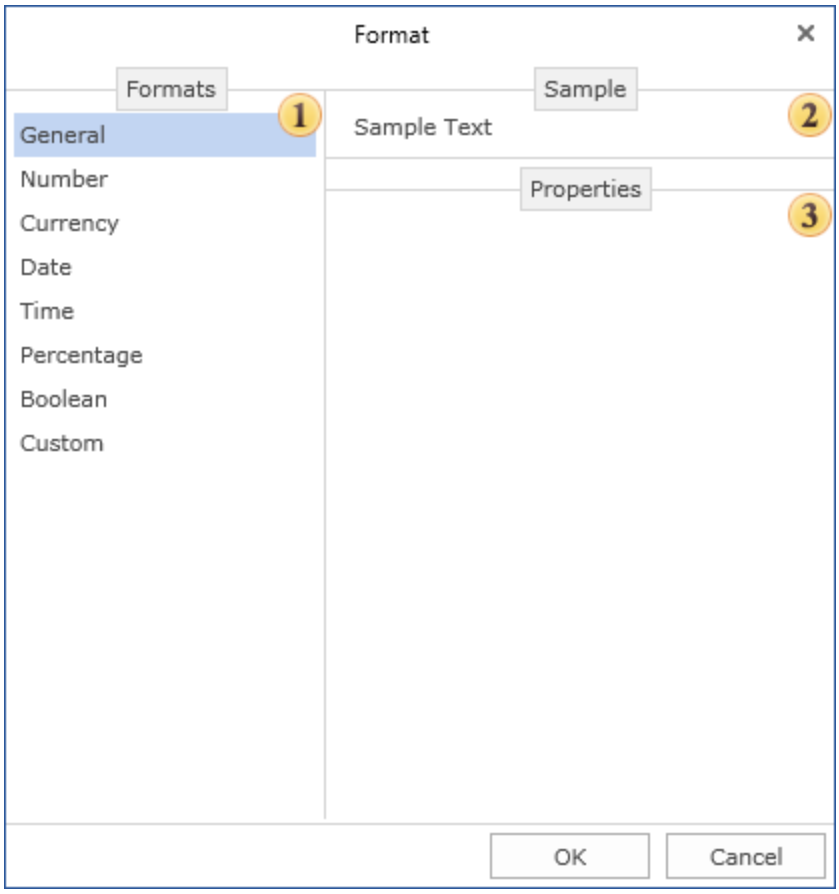


1 A section where the formatting type can be chosen.
There are some types of showing a text:

- **Standard** - output data without specific number format;
- **Number** — this format is used for general display of numbers;
- **Currency** — this format is used for general monetary values;
- **Date** — this format is used to display date values;
- **Time** — this format is used to display time values;
- **Percent** — this format is used to display a result in percent symbol;
- **Boolean** — this format is used to display boolean values;
- **Custom** — custom data formatting.

2 Shows how the formatted text will look like;
3 Shows the format settings.

### 5.5.1 Standard Formatting

The **Standard** format is used to show text and numerical values of any type. No formatting is done in this case.

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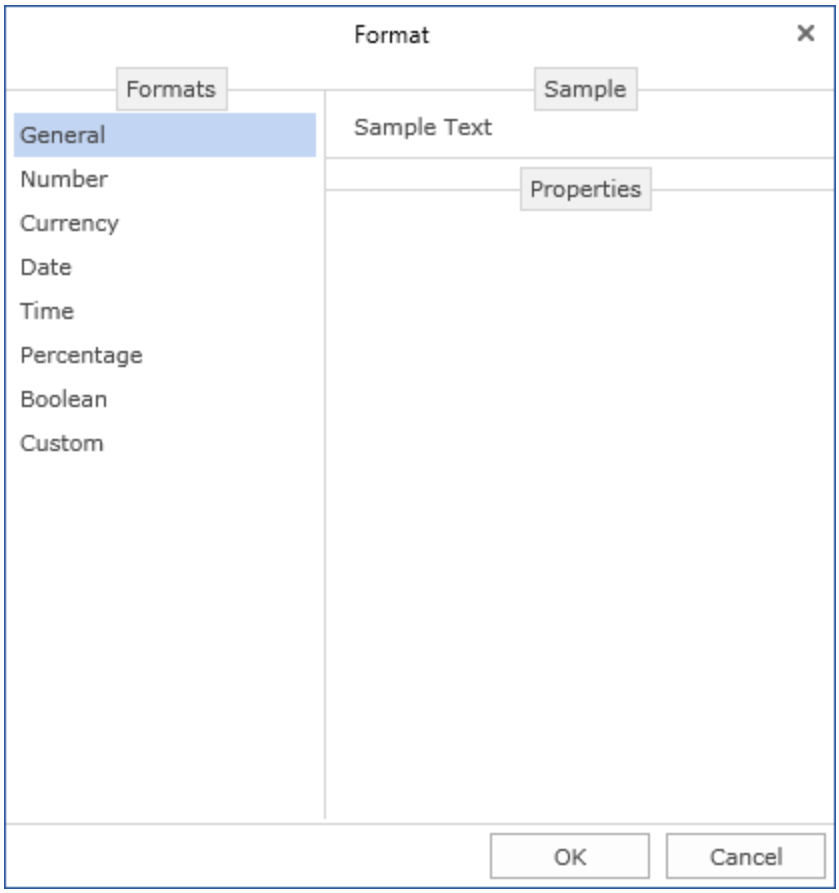


## 5.5.2 Numerical Formatting

It is recommended to use the numerical format to show numerical values.

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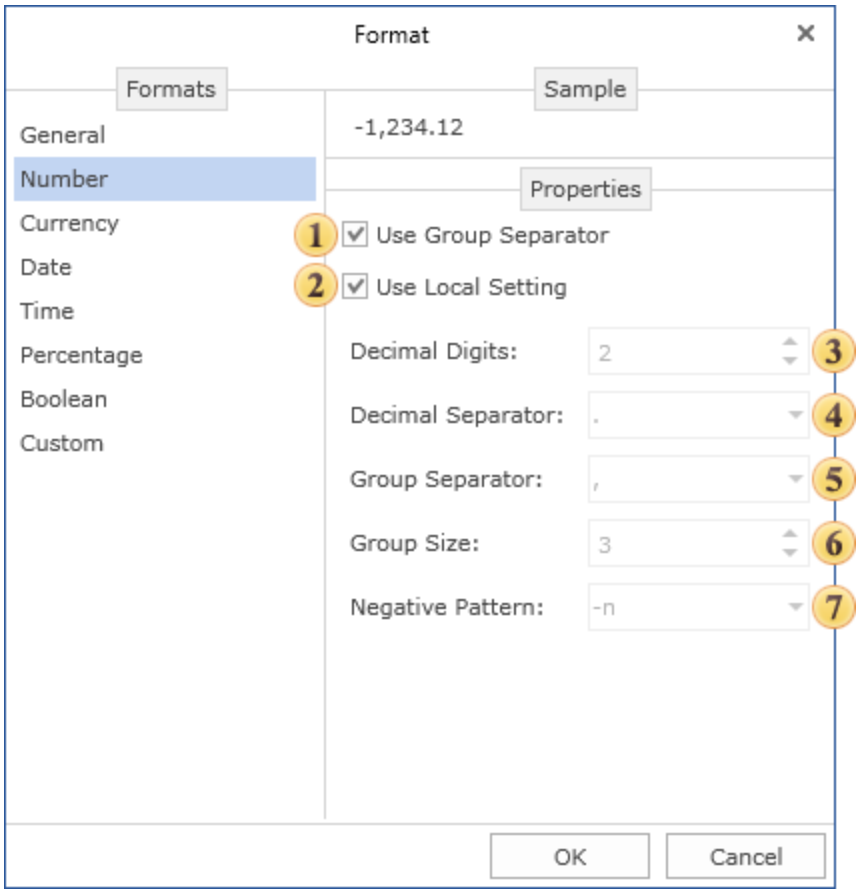


1 **Group separator**
When the Group Separator is used then number will be separated into number positions.
2 **Local setting**
When using the Local settings, numerical values are formatted according to the current OS installations.
3 **Decimal digits**
Number of decimal digits, which are used to format numerical values.
4 **Decimal separator**
Used as a decimal separator to separate numerical values in formatting.
5 **Group separator**
Used as a group separator when numerical values formatting.
6 **Group size**
The number of digits in each group in currency values formatting.
7 **Negative pattern**
This pattern is used to format negative values.

## 5.5.3 Currency Formatting

It is used for format currency values. Currency format can be used to output other numbers.

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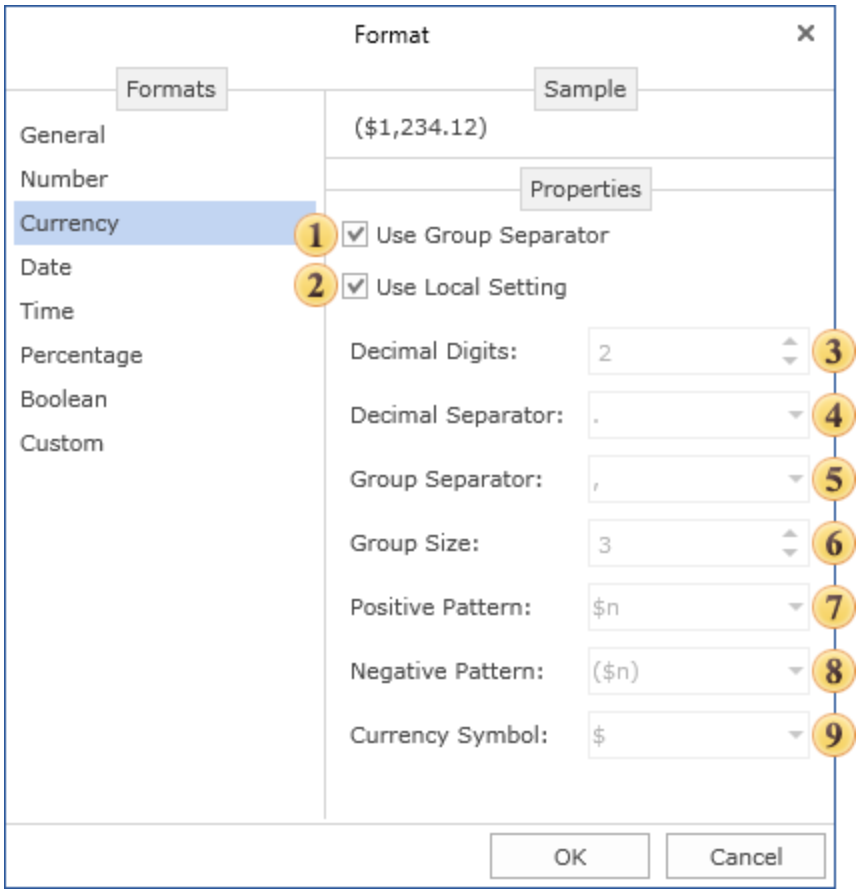


**1 Group separator**
When the Group Separator is used then currency values will be separated into number positions.

**2 Local setting**
When using the Local settings, currency values are formatted according to the current OS installations.

**3 Decimal digits**
Number of decimal digits, which are used to format currency values.

**4 Decimal separator**
Used as a decimal separator to separate currency values in formatting.

**5 Group separator**
Used as a group separator when currency values formatting.

**6 Group size**
The number of digits in each group in currency values formatting.

**7 Positive pattern**
This pattern is used to format positive values.

**8 Negative pattern**
This pattern is used to format negative values.

**9 Currency symbol**
This symbol is used to define the currency name.

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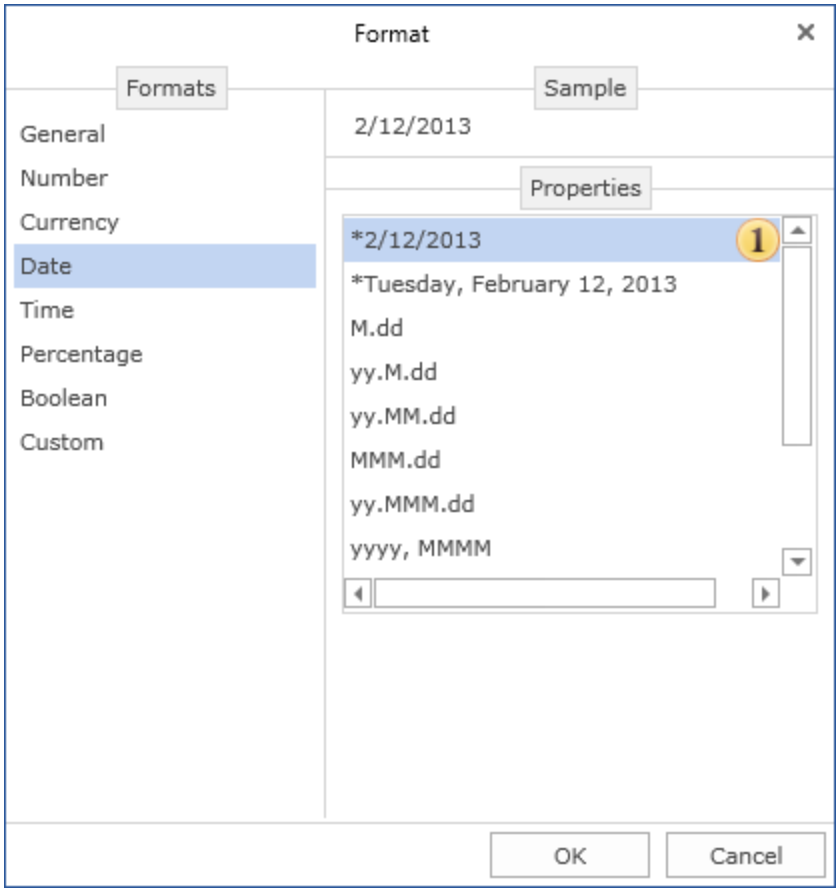
## 5.5.4 Date Formatting

The **Date** format is used to show a date. The **Date** format is selected from the set of formats: short date format, extended date format etc. In all formats, except ones which are marked with the (*) symbol, the order of elements is not changed.




**1 Date format**
The list format types.

## 5.5.5 Time Formatting

The **Time** format is used to show time. The **Time** format is selected from the set of formats: short date format and extended date format (with seconds).

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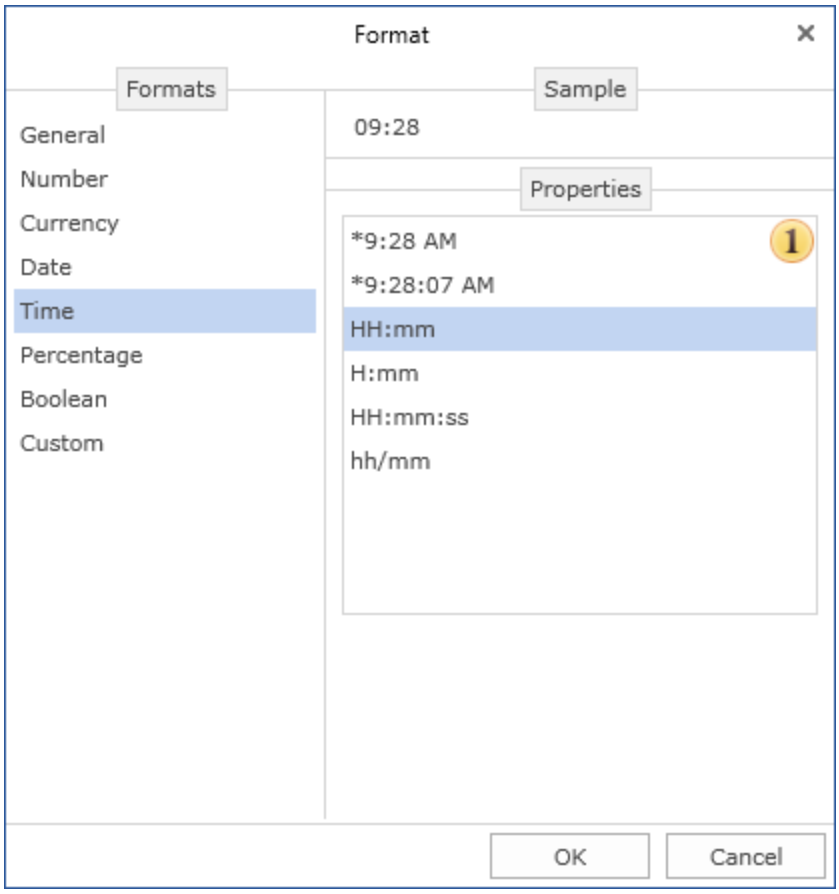


**Time format**

1 The list of format types

## 5.5.6 Percentage Data Formatting

This format is used to show percent values. When formatting, the value is multiplied by 100 and is output with the percent sign.

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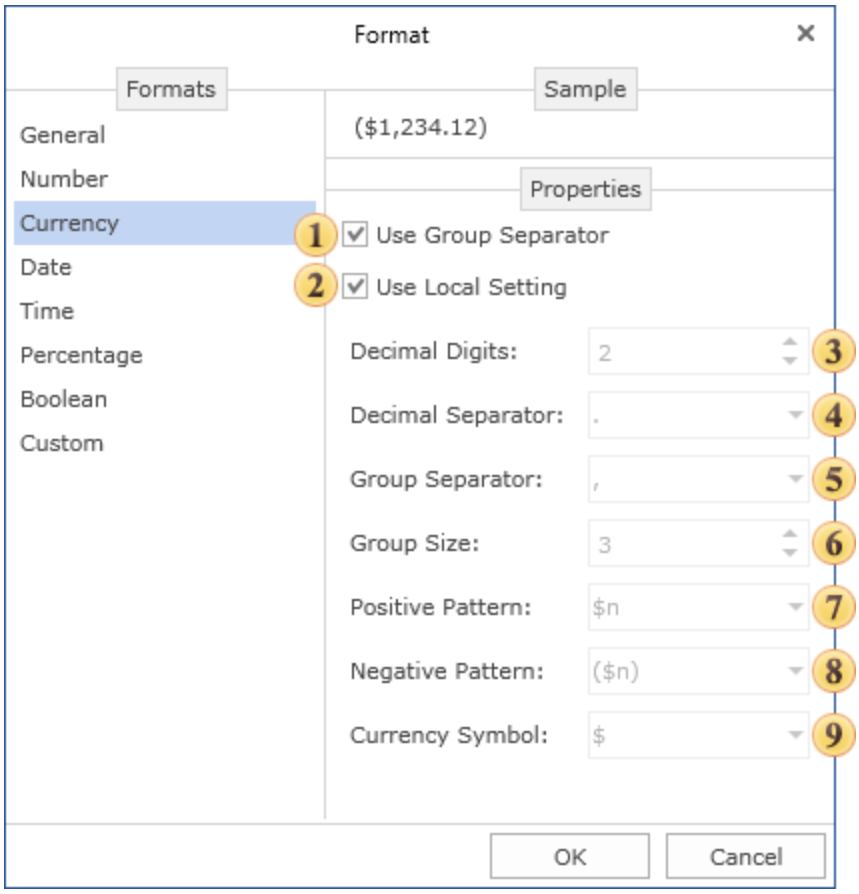


**1 Group separator**
When the Group Separator is used then currency values will be separated into number positions.

**2 Use local setting**
When using the Local settings, numerical values are formatted according to the current OS installations.

**3 Decimal digits**
Number of decimal digits, which are used to format numerical values.

**4 Decimal separator**
Used as a decimal separator to separate numerical values in formatting.

**5 Group separator**
Used as a group separator when numerical values formatting.

**6 Group size**
The number of digits in each group in currency values formatting.

**7 Positive pattern**
This pattern is used to format positive values.

**8 Negative pattern**
This pattern is used to format negative values.

**9 Percentage symbol**
The symbol will used as a percent sign.

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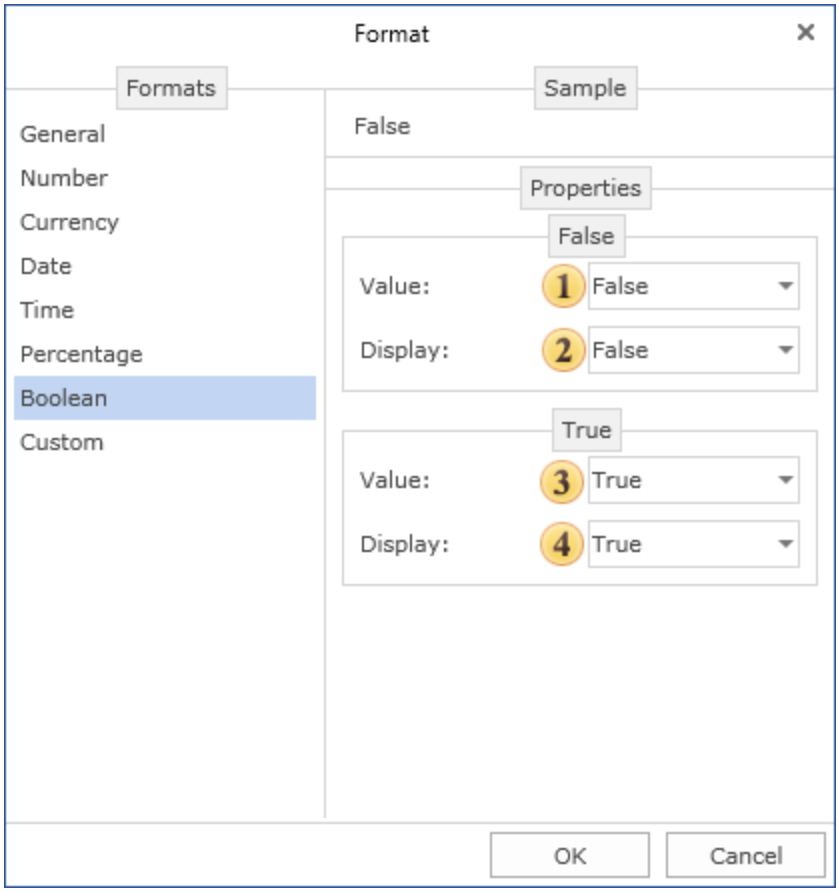
### 5.5.7 Boolean Values Formatting

This format is used to format values of the boolean type.




1. The string value to identify boolean values as **false**;
2. The string value to represent boolean value as **false**;
3. The string value to represent boolean value as **true**;
4. The string value to represent the boolean value as **true**.

### 5.5.8 Custom Formatting

This type is used to show values according to custom requirements. This type allows data formatting in the **Format Mask**.

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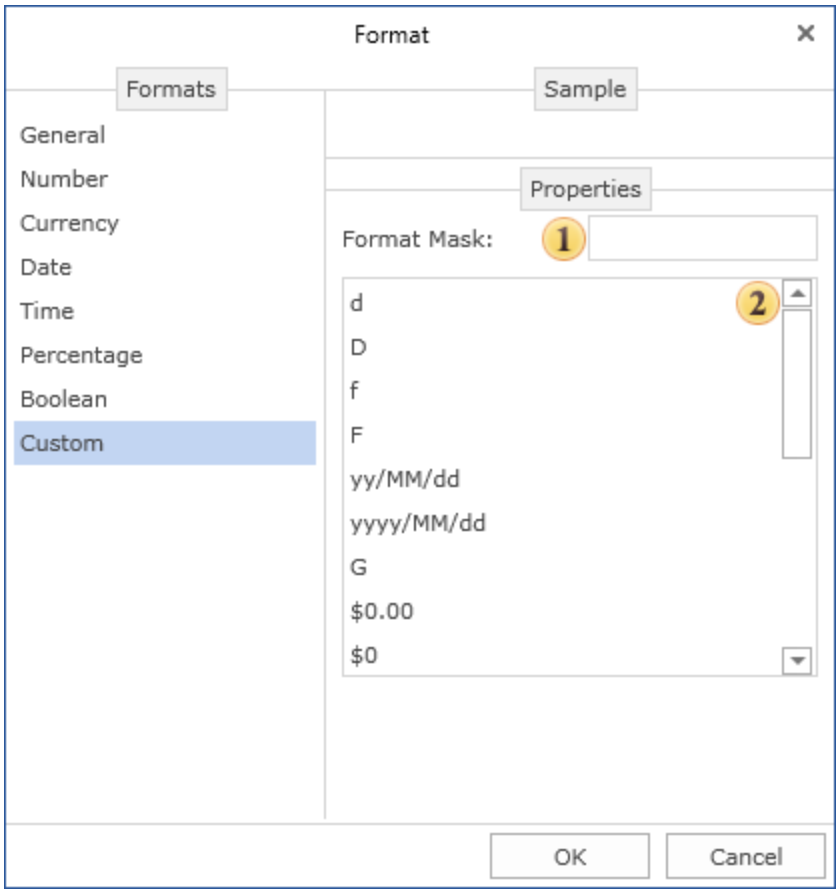


**1 Mask**
A string or an expression that set formatting mask.
**2 Predefined values**
The list of predefined values to format a string.

## 5.5.9 Formatting in Text

The **Text Format** tool allows values formatting using a lot of parameters and options. But this tool has one weak point. Formatting is applied on the whole text object. For example, if the text component is used to output data, then it is easy to format. But to do if it is required to format only one value from an expression? Or what to do if it is required to format two or more values of an expression? In this case it is recommended to use use the **string.Format** method. This method is used to make almost the same kind of formatting as if you use the **Text Format** tool. But the **string.Format** method is more flexible. For example, to format the value as a **currency** the **C** specificator is used:

```
Currency values: {string.Format("{0:C}", Value) }
```

if **Value** is 123.12, then after formatting the line will be:

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```
Currency values: $123.12
```

The **string.Format** method may have more than one parameter of formatting, for example:

```
Currency values: {string.Format("value1 - {0:C}, value2 - {0: 1}", Value1,
Value2) }
```

Please read MSDN to get more information about **string.Format**.

## 5.6 HTML Tags

Stimulsoft Reports has the ability to format text using standard HTML formatting tags.

**Important:** Only a limited range of HTML tags are supported - for example you cannot use div span. If you need to achieve bullet points or numbers within your text your choices are to enter them manually or to use the RTF text editor component.

Sometimes it is necessary to make part of a text expression look Bold, Italic, or Underlined. For example you may wish to achieve something like this:

The fifth word is **bold**

HTML tags can help achieve this. The output shown above could be generated using the following expression:

```
The fifth word is <b>bold</b>
```

It is possible to get a similar result without using HTML by using the Rich text component, but there are some difficulties and the Rich text component works very slowly, so using HTML tags is often the best way to achieve the desired result.

HTML tags can be included only in the text part of expression, in other words their use is possible only in the **Text** property of the **Text** component.

**Important:** HTML tags can be included only in the text part of an expression.

For example, the following expressions are correct:

```
This is a simple <i>expression {1+2}</i>

This is a simple <i>expression</i> {1+2}
```

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```
This is a simple expression <i>{1+2}</i>
```

These expressions however are incorrect:

```
The is a simple <i>expression {1</i>+2}

The is a simple <i>expression {1+2</i>}

The is a simple expression {<i>1+2}</i>
```

In the examples above the HTML tags are placed within the body of an expression that will be calculated by C# or VB.Net, shown by the curly braces, so they are impossible to process.

**Important:** Do NOT place HTML tags inside the curly braces of any expression or the expression will fail.

**Available Tags**
There are few limitations - most valid HTML style tags can be inserted, with the exception of ordered list and unordered list tags. If you need to generate such lists you can use the Rich Text control or create the layout manually.

**Important:** You cannot use Ordered and Unordered List tags within expressions.

HTML tags can be nested to an unlimited depth. For example:

```
This is a <b>simple <i>expression {1+2}</i></b>
```

If a tag is not closed, then the tag works to the end of the text line.

If HTML tags are used in a text expression then any line breaks in that expression are ignored. If you need to enforce a line break in your text, use the <br> tag.

**Note.** Use the <br> tag to break a line when using HTML tags.

**Activating HTML Tags**
It is important to know that by default HTML tags in expressions are simply ignored. To allow the use of HTML tags it is necessary to set the **AllowHtmlTags** property of the Text component to true.

**Important:** Set the AllowHtmlTags property to true to allow the use of HTML tags in the text expression.

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## 5.6.1 HTML <font> Tag

The tag is used to add style, size, and color to a text expression. If there is no closing tag then all changed font characteristics will be applied from the beginning of the tag and to the end of the text.

**Syntax:**

```
<font face="FontName" color="#rrggbb" size="n"> </font>
```

**Parameters:**
**color** Defines the color of the text.
**face** Defines the font of the text.
**size** Defines the size of the text.

Not all of these parameters have to be used. The default value is set within the parameters of the text component, so ifthe font size of the text component is 8 points and the **size** parameter is not used in the tag, then the text will be output at 8 points. The same rule works for the other parameters.

**Example:**
If you enter the following expression:

```
Test <font color="red" face="Courier" size="18">Test</font> Test
```

then after calculation the result appearing in the report will be:

Test Test Test

### 5.6.1.1 Color Parameter

The color parameter defines the color of the text in the font element. The color can be set in two ways:

**By Name**
You can define the colour by name - a collection of 147 color names is supported. If the report generator is not able to identify the color set, then it ignores the**color**parameter. For example:

```
<font color="red" ...>

<font color="black" ...>

<font color="white" ...>
```

**By Hex Value**

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You can also specify the color using a hex (hexadecimal) value like"#ff0000". It is very important to add the hash symbol '#' before the hexadecimal notation.

The color is a combination of Red, Green and Blue values (#rrggbb). Each of the three colors may have hex values from 00 through to FF. The first two**rr**symbols indicate the red part of the color,**gg**symbols indicate the green part of the color, and**bb**symbols indicate the blue part. A color can be set in a short form using one symbol for each color. For example:

```
<font color="#FF0000" ...>

<font color="#F00" ...>

<font color="#FF0000" ...>

<font color="#998877" ...>

<font color="#FF00FF" ...>
```

**Important:** If the color value set is not recognized or is invalid, then the color specified in the Text component or in the tag is used.

**Alternative Tags**
The tag or the tag can also be used to define the text color.For example:

```
<font-color="red">

<color="red">
```

### 5.6.1.2 Face Parameter

The face parameter defines the name of the font of the text within the font element. To use this parameter you must specify the font name. If the font is not found, then the font of the text component or the previous font specified in thetag is used.

The sample below shows how to use the **face** parameter:

```
<font face="Arial" ...>
```

**Alternative Parameters**
Instead of the "**face**" parameter the parameters "**name**" and "**family**" can be used. All these attributes are identical. For example:

```
<font face="Courier" ...>
```

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```
<font name="Courier" ...>

<font family="Courier" ...>
```

All the text expressions above specify the same font.

**Alterative Tags**
The tag is the same as the tag with the **face** parameter. For example:

```
<font-face="Arial">
```

#### 5.6.1.3 Size Parameter

The size parameter defines the size of the text in the font element in points. For example:

```
<font size="14" ...>
```

If the expression is incorrectly formulated then the parameter is ignored.

**Alternative Tags**
The font size can also defined separately using the tag. For example:

```
<font-size="14">
```

### 5.6.2 HTML Tags to Change Font Style

The report generator supports nine tags for changing a font style: **<b>**, **<i>**, **<u>**, **<s>**, **<sup>, <sub>, , <p>, <br>**. These HTML tags are called formatting tags. These formatting tags can make text bold, italic, sub/superscripted, and more.

The example below shows how the **<b>** tag works in a text expression. If you enter the following expression:

```
This <b>text</b> is bold.
```

then after calculation the result appearing in the report will be:

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```
This text is bold.
```

Note that the word 'text' is enclosed within the opening and closing  and  tags.

Formatting tags can be used in combination with other formatting tags to changing the text style. For example, if you enter the following expression:

```
This <i><b>text</b></i> is bold italic.
```

then after calculation the result appearing in the report will be:

```
This text is bold italic.
```

Style intersection is not allowed, i.e. formatting tags may not be nested partly inside and partly outside another formatting tag. For example:

```
<b>This <i>text</b> is bold</i> italic.  // This will fail
```

The available formatting tags are discussed in detail in the following topics.

#### 5.6.2.1 HTML  Tag

The **** tag is used to define bold text. The tag can be used in combination with other tags to change the text style. For example, if you enter the following expression:

```
Test <b>Test</b> Test
```

then after calculation the result appearing in the report will be:

```
Test Test Test
```

If a tag is not closed then the formatting is applied to from the opening tag to the end of the text expression.

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#### 5.6.2.2 HTML <i> Tag

The **<i>** tag is used to define italic text. The tag can be used in combination with other tags to change the text style. For example, if you enter the following expression:

```
Test <i>Test</i> Test
```

then after calculation the result appearing in the report will be:

Test *Test* Test

If a tag is not closed then the formatting is applied to from the opening tag to the end of the text expression.

#### 5.6.2.3 HTML  Tag

The <**em**> tag is used for indicating emphasis. The text inside this tag is more important than flat text. The text displayed using the <**em**> tag looks italic. The example below shows how the <**em**> tag works:

```
Emphasis <em>Emphasis</em> Emphasis
```

then after calculation the result appearing in the report will be:

Emphasis *Emphasis* Emphasis

If a tag is not closed then the formatting is applied to from the opening tag to the end of the text expression.

#### 5.6.2.4 HTML <u> Tag

The **<u>** tag is used to define underlined text. The tag can be used in combination with other tags to change the text style. For example, if you enter the following expression:

```
Test <u>Test</u> Test
```

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then after calculation the result appearing in the report will be:

```
Test Test Test
```

If a tag is not closed then the formatting is applied to from the opening tag to the end of the text expression.

#### 5.6.2.5 HTML <s> Tag

The **<s>** tag is used to define strikethrough text, that is text with a horizontal line through the center. The tag can be used in combination with other tags to change the text style. For example, if you enter the following expression:

```
Test <u>Test</u> Test
```

then after calculation the result appearing in the report will be:

```
Test Test Test
```

If a tag is not closed then the formatting is applied to from the opening tag to the end of the text expression.

#### 5.6.2.6 HTML <sup> Tag

The **<sup>** tag is used to define a superscripted text. Superscript text appears half a character above the baseline. The tag can be used in combination with other tags to change the text style. For example, if you enter the following expression:

```
Test <sup>Test</sup> Test
```

then after calculation the result appearing in the report will be:

```
Test Test Test
```

If a tag is not closed then the formatting is applied to from the opening tag to the end of the text expression.

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#### 5.6.2.7 HTML <sub> Tag

The <**sub**> tag defines a subscripted text. A subscripted text appears half a character below the baseline. The example below shows how the **<sub>** tag works:

```
Test <sub>Test</sub> Test
```

The result of output:

```
Test Test Test
```

#### 5.6.2.8 HTML  Tag

The <**strong**> tag indicates strong emphasis. It has an end tag. A text within this tag is more important than a flat text. It is usually rendered in bold font style. The example below shows how the <**strong**> tag works:

```
Text <strong>Text</strong> Text
```

The result of output:

Text **Text** Text

#### 5.6.2.9 HTML <p> Tag

The <**p**> tag defines a paragraph. It has an end tag. The example below shows how the <**p**> tag works:

```
<p>This is a text in a paragraph.</p>
This is a text after the paragraph.
```

The result of output:

This is a text in a paragraph.

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```
This is a text after the paragraph.
```

#### 5.6.2.10 HTML <br> Tag

The <**br**> tag inserts a single line break. It has no end tag. The example below shows how the <**br**> tag works:

```
How it<br> works.
```

The result of output:

```
How it
works.
```

#### 5.6.2.11 HTML <ol> Tag

The <ol> tag inserts an ordered list, which is a block level element consisting of a sequence of numbered items, usually displayed with a number on the left margin.

```
<p>How it works!</p>
<ol>
<li>How</li>
<li>it</li>
<li>works.</li>
</ol>
```

The result of output:

How it works!

1. How
2. it
3. works.

#### 5.6.2.12 HTML <ul> Tag

The <ul> tag inserts an unordered list, which is a block level element consisting of a sequence of items,

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usually displayed with a bullet on the left margin.

```
<p>How it works!</p>
<ul>
<li>How</li>
<li>it</li>
<li>works.</li>
</ul>
```

The result of output:

How it works!

- How
- it
- works.

### 5.6.3 HTML <background-color> Tag

The **<background-color>** tag is used to change the background color of a text element. By default the background color is set the same as the color specified in thetag, or in the text component properties if no font has been specified.

However, if you place text between a pair of start and end background color tags, then the specified background color will be applied to that text. For example, if you enter the following expression:

```
Test Test Test
```

then after calculation the result appearing in the report will be:

TestTestTest

### 5.6.4 HTML <text-align> Tag

The <text-align> tag specifies the horizontal alignment of an element with respect to the surrounding context in the text component. The tag supports four modes of alignment: **left**, **right**, **center,** and **justify**. For example, if you enter the following expression:

```
Test<br>
```

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```
<text-align="right">Test</text-align><br>
Test<br>
```

then after calculation the result appearing in the report will be:

### 5.6.5 HTML <letter-spacing> Tag

The <letter-spacing> tag is used to define the space between letters. The value of this tag can be set in any units, and the value can be negative, so it is very important to make sure that a text is readable after applying this tag. By default the value of this tag is 0.

For example, if you enter the following expression:

```
Test<br><letter-spacing="0.5">Test</letter-spacing>
```

then after calculation the result appearing in the report will be:

Test
T e s t

### 5.6.6 HTML <word-spacing> Tag

Using the **<word-spacing>** tag it is possible to define the space between each words. If the **<text-align>** tag with the **"justify"** value is used, then the **<word-spacing>** tag is ignored. This happens because the interval between words is already specified and a line of a text is aligned by both left and right sides. The example below shows how the **<word-spacing>** tag works:

```
Test <word-spacing="2"> Test </word-spacing>Test
```

The result of output:

Test Test  Test

### 5.6.7 HTML <line-height> Tag

The **<line-height>** tag sets the height of the text line. The tag is set as the multiplier for the basic line height. By default the value if the **<line-height>** tag is 1. The example below shows how this tag works:

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```
Test<line-height="1.5"><br></line-height>Test<line-height="0.7"><br></line-height>Test
```

The result of output:

Test

Test
Test

## 5.6.8 Special Characters

Sometimes it is necessary to use a phrase, for example, in French or German on the website page or to display an example of HTML code on the page. For this purpose, the braces characters, opening "<" and closing ">" are used. They define the first and last character of the tag. For example, in order to display the "greater-than" sign or the opening "<" brace, the "**<**" character is used. Each character has its **&-ASCII** code, which has a specific **&#****** format, where **** is a numeric character. Pointing a **&-ASCII** code, the appropriate symbol will be output on the page. Also, some characters have **&-Name** codes, which have the **&****** formats where **** is an alphabetic names of characters. Below are the tables with the most frequently used characters:

**Special Characters**

| Common Name | ISO Latin-1 Numeric Entity | &-ASCII | &-Name |
|---|---|---|---|
| Quotation mark | " | " | " |
| Ampersand | & | & | & |
| Non-breaking space | |   |   |
| Inverted exclamation point | ¡ | ¡ | &ixcl; |
| Cent | ¢ | ¢ | ¢ |
| Pound sterling | £ | £ | £ |
| General currency | ¤ | ¤ | ¤ |
| Yen sign | ¥ | ¥ | ¥ |
| Broken vertical bar | ¦ | ¦ | ¦ |
| Section sign | § | § | § |
| Dieresis | ¨ | ¨ | ¨ |
| Copyright | © | © | © |
| Feminine ordinal | ª | ª | ª |
| Left guillemot | « | « | « |

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| | | | |
|---|---|---|---|
| Not sig | ¬ | ¬ | ¬ |
| Soft hyphen | - |  |  |
| Registered trademark | ® | ® | ® |
| Macron | ¯ | ¯ | ¯ |
| Degree sign | ° | ° | ° |
| Plus or minus | ± | ± | ± |
| Superscript 2 | ² | ² | ² |
| Superscript 3 | ³ | ³ | ³ |
| Acute accent | ´ | ´ | &acuate; |
| Mu | µ | µ | µ |
| Pilcrow | ¶ | ¶ | ¶ |
| Middle dot | · | · | · |
| Cedilla | ¸ | ¸ | ¸ |
| Superscript 1 | ¹ | ¹ | ¹ |
| Masculine ordinal | º | º | º |
| Right guillemot | » | » | » |
| Fraction one-fourth | ¼ | ¼ | ¼ |
| Fraction one-half | ½ | ½ | ½ |
| Fraction three-fourths | ¾ | ¾ | ¾ |
| Inverted question mark | ¿ | ¿ | ¿ |

**UPPERCASE LATIN-1 CHARACTERS**

| Name | Character | &-ASCII | &-Name |
|---|---|---|---|
| Capital A, grave accent | À | À | À |
| Capital A, acute accent | Á | Á | Á |
| Capital A, circumflex accent | Â | Â | Â |
| Capital A, tilde | Ã | Ã | Ã |
| Capital A, dieresis | Ä | Ä | Ä |
| Capital A, ring | Å | Å | Å |
| Capital AE diphthong | Æ | Æ | Æ |
| Capital C, cedilla | Ç | Ç | Ç |
| Capital E, grave accent | È | È | È |

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| | | | |
|---|---|---|---|
| Capital E, acute accent | É | É | É |
| Capital E, circumflex accent | Ê | Ê | Ê |
| Capital E, dieresis | Ë | Ë | Ë |
| Capital I, grave accent | Ì | Ì | Ì |
| Capital I, acute accent | Í | Í | Í |
| Capital I, circumflex accent | Î | Î | Î |
| Capital I, dieresis | Ï | Ï | Ï |
| Capital Eth | Ð | Ð | Ð |
| Capital N, tilde | Ñ | Ñ | Ñ |
| Capital O, grave accent | Ò | Ò | Ò |
| Capital O, acute accent | Ó | Ó | Ó |
| Capital O, circumflex accent | Ô | Ô | Ô |
| Capital O, tilde | Õ | Õ | Õ |
| Capital O, dieresis | Ö | Ö | Ö |
| Multiply sign | × | × | × |
| Capital O, slash | Ø | Ø | Ø |
| Capital U, grave accent | Ù | Ù | Ù |
| Capital U, acute accent | Ú | Ú | Ú |
| Capital U, circumflex accent | Û | Û | Û |
| Capital U, dieresis | Ü | Ü | Ü |
| Capital Y, acute accent | Ý | Ý | Ý |
| Capital Thorn | Þ | Þ | Þ |
| German sz ligature | ß | ß | ß |

**LOWERCASE LATIN-1 CHARACTERS**

| Name | Character | &-ASCII | &-Name |
|---|---|---|---|
| Lowercase a, grave accent | à | à | à |
| Lowercase a, acute accent | á | á | á |
| Lowercase a, circumflex accent | â | â | â |
| Lowercase a, tilde | ã | ã | ã |
| Lowercase a, dieresis | ä | ä | ä |
| Lowercase a, ring | å | å | å |

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| | | | |
|---|---|---|---|
| Lowercase ae ligature | æ | æ | æ |
| Lowercase c, cedilla | ç | ç | ç |
| Lowercase e, grave accent | è | è | è |
| Lowercase e, acute accent | é | é | é |
| Lowercase e, circumflex accent | ê | ê | ê |
| Lowercase e, dieresis | ë | ë | ë |
| Lowercase i, grave accent | ì | ì | ì |
| Lowercase i, acute accent | í | í | í |
| Lowercase i, circumflex accent | î | î | î |
| Lowercase i, dieresis | ï | ï | ï |
| Lowercase eth | ð | ð | ð |
| Lowercase n, tilde | ñ | ñ | ñ |
| Lowercase o, grave accent | ò | ò | ò |
| Lowercase o, acute accent | ó | ó | ó |
| Lowercase o, circumflex accent | ô | ô | ô |
| Lowercase o, tilde | õ | õ | õ |
| Lowercase o, dieresis | ö | ö | ö |
| Division sign | ÷ | ÷ | ÷ |
| Lowercase o, slash | ø | ø | ø |
| Lowercase u, grave accent | ù | ù | ù |
| Lowercase u, acute accent | ú | ú | ú |
| Lowercase u, circumflex accent | û | û | û |
| Lowercase u, dieresis | ü | ü | ü |
| Lowercase y, acute accent | ý | ý | ý |
| Lowercase thorn | þ | þ | þ |
| Lowercase y, dieresis | ÿ | ÿ | ÿ |

## 5.7 Rich Text Output

Stimulsoft Reports allows users to include **Rich Text** formatted (**RTF**) text in reports, without any limitations.

The **RichText** component is designed for working with rich text, and can automatically change its size

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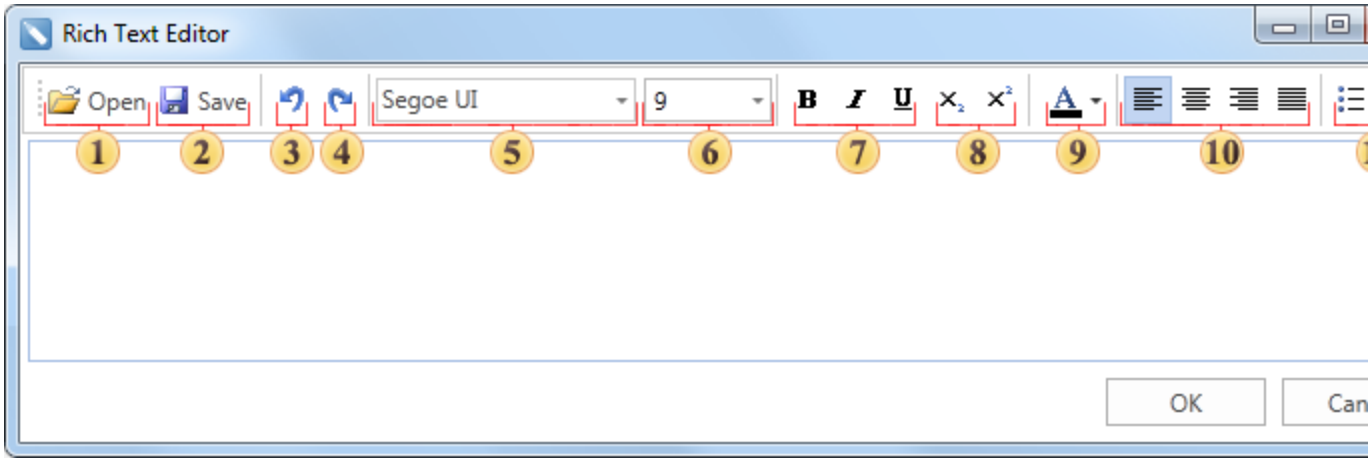
depending on the size of the **RTF** text within it. It can process expressions, and supports a wide variety of styles, processing at the end of report rendering, etc.

### 5.7.1 Rich Text Editor

A special editor provided as part of the **RichText** component is used to edit RTF text. This editor is able to load and save RTF text in files, change a font, change font size, change text color, insert expressions etc. No other editor is required to edit RTF text, everything you need is provided within the editor.

The editor is displayed automatically when you insert a **RichText** component, and can be re-opened at any time by double-clicking on the component.

The editor and its controls look something like this:

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1 The **Open** button. Displays a standard File Open dialog to allow the content of an existing ***.rtf** file to be loaded into the component.
2 The **Save** button. Displays a standard File Save dialog to allow the component RTF text to be saved to an external ***.rtf** file.
3 The **Insert** button. Displays options allowing you to Insert an expression, function or variable into the component at the current cursor position.
4 **Undo** and **Redo** buttons. **Undo** erases the most recent change to a report reverting it to the previous state. The **Redo** command does the opposite of undo.
5 The **Font** button. Displays a  of currently selected text can be changed by selecting a new font from the drop down list of font faces.
7 The **Font Size** combo. Displays the size of the current font. The size of currentlstandard Font dialog to allow you to set options such as the font family, style, size etc.
6 The **Font Face** combo. Displays the name of the current font. The fonty selected text can be changed by selecting a new size from the drop down list of font faces.
8 **Bold**,**Italic**,**Underline** buttons. The Font style buttons display the style of the current font. The style of currently selected text can be changed by clicking these buttons to apply or remove styles as required. It is possible to have a font style that combines any number of style aspects, so for example you could have bold underlined text if required.
9 **Subscript** and **Superscript** buttons. Displays the **Subscript** and **Superscript** font styles of the currently selected text. These attributes can be changed by clicking the buttons to apply the required attribute.**Subscript**is text is positioned slightly lower than the remaining text on a line whilst **Superscript** is positioned slightly higher. For example, a footnote or endnote number reference is an example of superscript, and a scientific formula might use subscript text. The **Subscript** and **Superscript** styles are mutually exclusive, so selecting one will automatically deselect the other.
10 The **Color** button. Displays a standard Color dialog to allow the color of the currently selected text to be changed.
11 **Text Alignment** buttons. Displays the alignment of the currently selected text, which can be **Left Align**, **Center**, **Right Align**, or **Justify**. The alignment of the currently selected text can be changed by clicking the buttons to apply the required attribute. The **Text Alignments** are mutually exclusive, so selecting one will automatically deselect the other.
12 The **Bullets** button. Displays the bullet status of the currently selected text. The bullet style of currently selected text can be changed by clicking this button to apply or remove bullets as required.

## 5.7.2 Expressions in Rich Text

The RTF text is an expression in the **RichText** component. There are no significant differences between working with expressions in the **RichText** component and other text components.

The syntax and use of expressions is similar to the syntax and use of expressions in text components, but there is one particular issue to consider - any applied formatting must be applied to the full code insertion and not just part of it.

Suppose that you want the calculated value in the RTF text to be a specific color.  It is vital that the colour attribute is applied to the full expression from the opening brace "{" to the closing brace "}" including those symbols. For example:

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Formatting is fully applied to the expression. This expression will work correctly.

Formatting is applied to only part of the expression. This expression will not work.

Formatting is fully applied to the expression, but the braces are not included. This expression will not work.

Formatting does not include the opening brace. This expression will not work.

You should know that in the expressions of the RichText component only plain text can be inserted this way (without formatting commands). So it is not possible to insert the RTF text. You can only assign all of its properties with the help of the DataColumn.

### 5.7.3 Loading Rich Text From Data Field

The **RichText** component can load the RTF text from the data field using the **DataColumn** property. To load the RTF text simply select a field from the data dictionary tree. When rendering the report generator will automatically load the RTF text for you.

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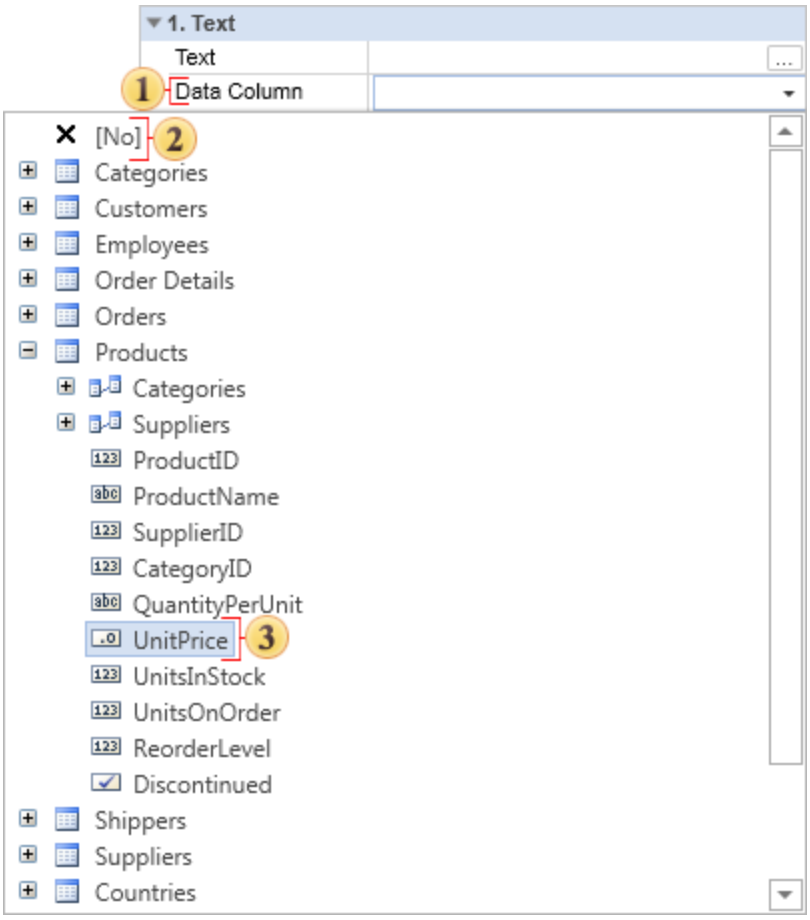


1 **DataColumn** property. This property is used to indicate from which data field the RTF text should be loaded. Click the button beside to select the relevant column.
2 **Null node.** Selecting this node means that the RTF text is not loaded from a data field.
3 **Selected** field. The Data field from which the RTF text will be loaded.

## 5.8 Graphic Information Output

Sometimes it is necessary to add images to reports. They can be photos of goods, images of colleagues etc. Sometimes it is necessary to place a company logo. The **Image** component is used to output images. This component supports the following types of images: **BMP, JPEG, TIFF, GIF, PNG, ICO, EMF,SVG,** and **WMF**.

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# Images

| Country name | Flag | Country name | Flag |
|---|---|---|---|
| Afghanistan | | Albania | |
| Algeria | | American Samoa | |
| Andorra | | Angola | |
| Anguilla | | Antigua and Barbuda | |
| Argentina | | Armenia | |
| Aruba | | Ashmore and Cartier Islands | |
| Australia | | Austria | |
| Azerbaijan | | Bahamas | |
| Bahrain | | Baker Island | |
| Bangladesh | | Barbados | |
| Bassas da India | | Belarus | |
| Belgium | | Belize | |

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## 5.8.1 Loading Images

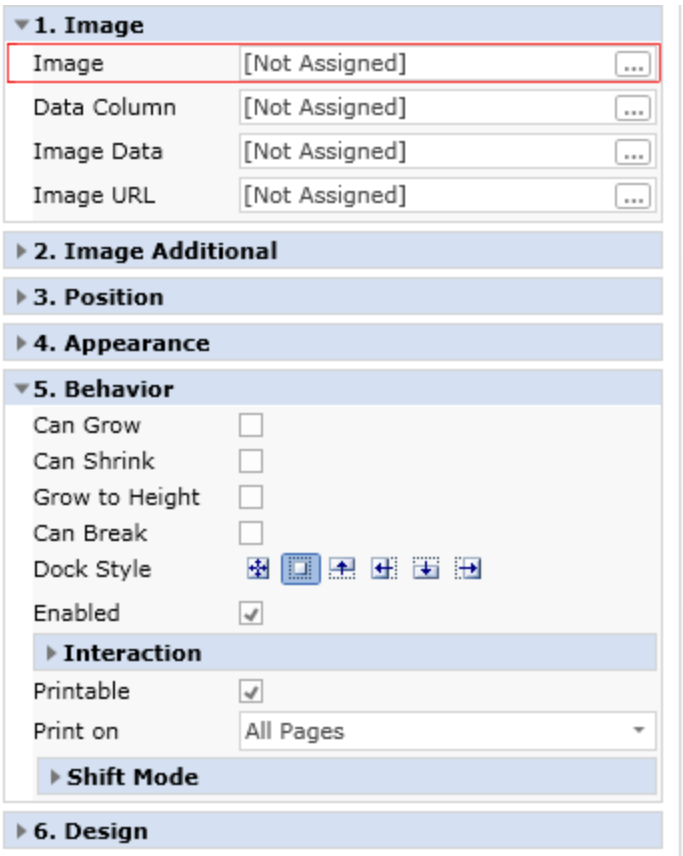
To print an image it is necessary to use the **Image** component. But an image should be loaded first. There are three ways:

- Load an image from a file;
- Load an image from the report code;
- Load an image from the data field.
- Load an image from the URL.

The below topics describe all these ways.

**Loading an image from a file**

An image can be loaded from a file. Using the **File** property it is necessary specify the file path that contains an image. When report rendering, the report generator will check whether such a file does exist and contains an image. Then the image will be printed.




**Loading an image from a report code**

Sometimes it is not convenient to store images for report rendering in files. The report generator can save it in the report code. Using the Image property it is possible to load an image from the report code. After loading the image will be saved in the report code.

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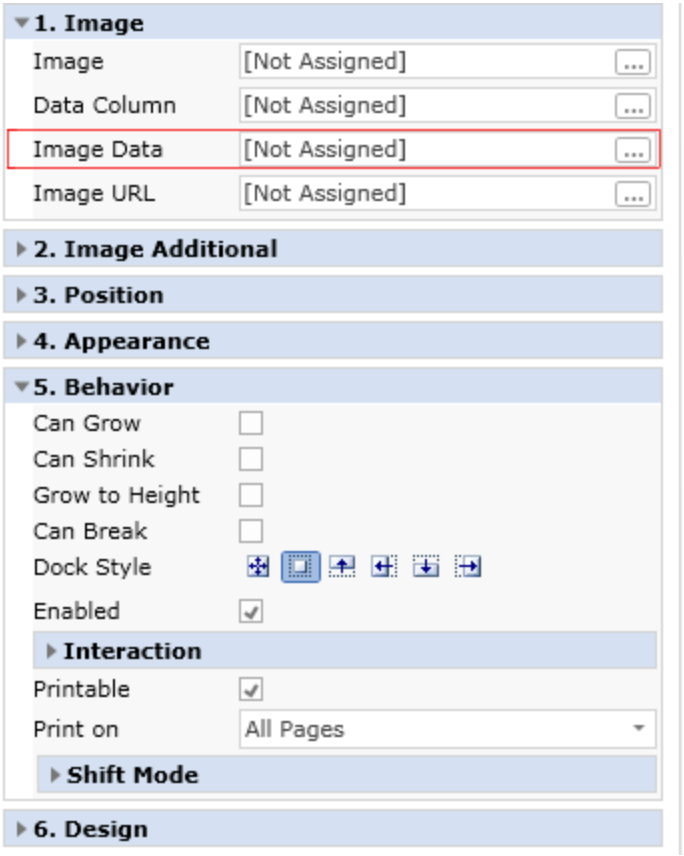
**Important:** Do not use this way to output images with the size >100kb. This can be critical for speed of working with the report designer.




**Loading an image from a data field**

All it is required to load images from a data field is to specify the data field, from what the image will be loaded. The **DataColumn** property is used for this.

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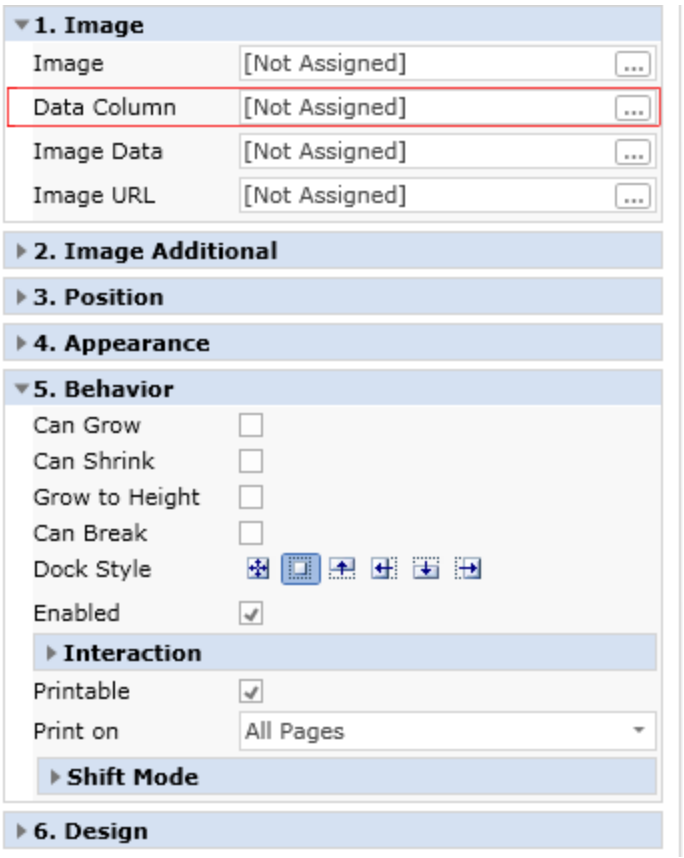
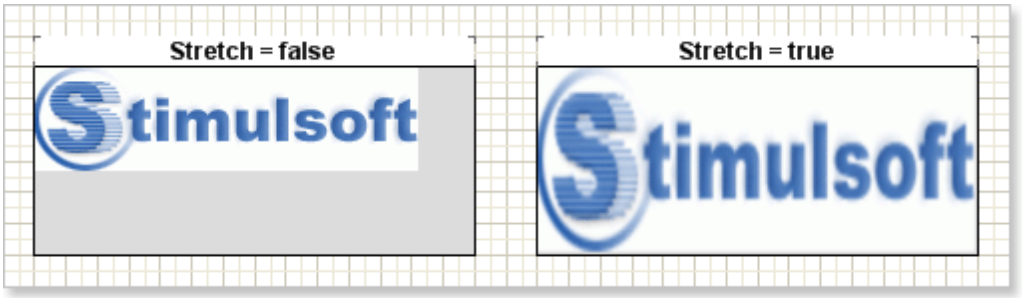



## 5.8.2 Image Stretching

Often image size does not fit to the component size. In this case free space can be found in a component. Sometimes an image size is bigger that the component size. In such situations it is necessary to stretch images to fill the component with the image. For this, it is necessary to put the **Stretch** property of the Image component to **true**.




After setting the **Stretch** property to **true** the image will fill all free space of the component. When stretching, the image its proportions can be broken. To stretch an image and keep its proportions it is necessary to set the **AspectRatio** property to **true**. And the **Image** component will always keep proportions of images.

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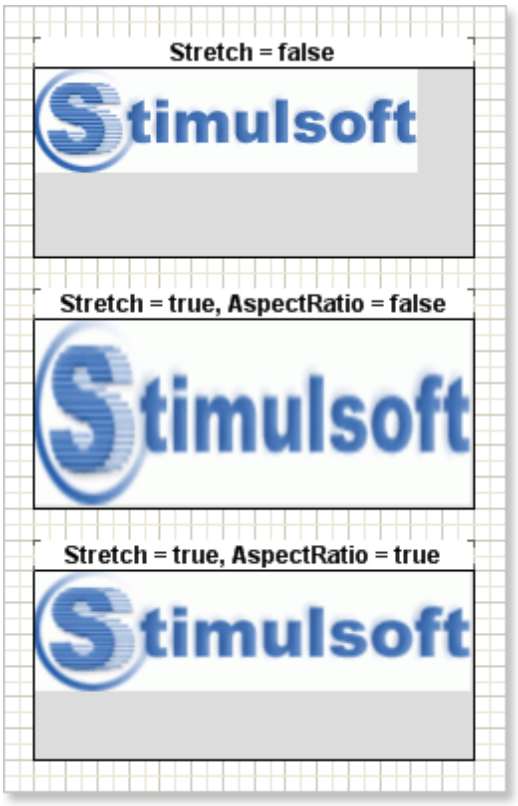


**Important:** The **AspectRatio** property is in process only when the image stretching is enabled.

### 5.8.3 Resources of Images

The **Image** component is used to output images in a report. The way of loading an image can be selected using the the editor of properties of components. This editor is called by double clicking on the **Text** component or clicking the ... button for calling a designer of **Image** property in the **Property Editor**.
There are the following ways to load images to the **Image** component:

Load an image when creating this component in the designer. The **Open** button is used to load an image to the **Text** component in the designer. When saving the file, the image will be saved in the report code. The **Remove** button allows deleting selected components from the designer.

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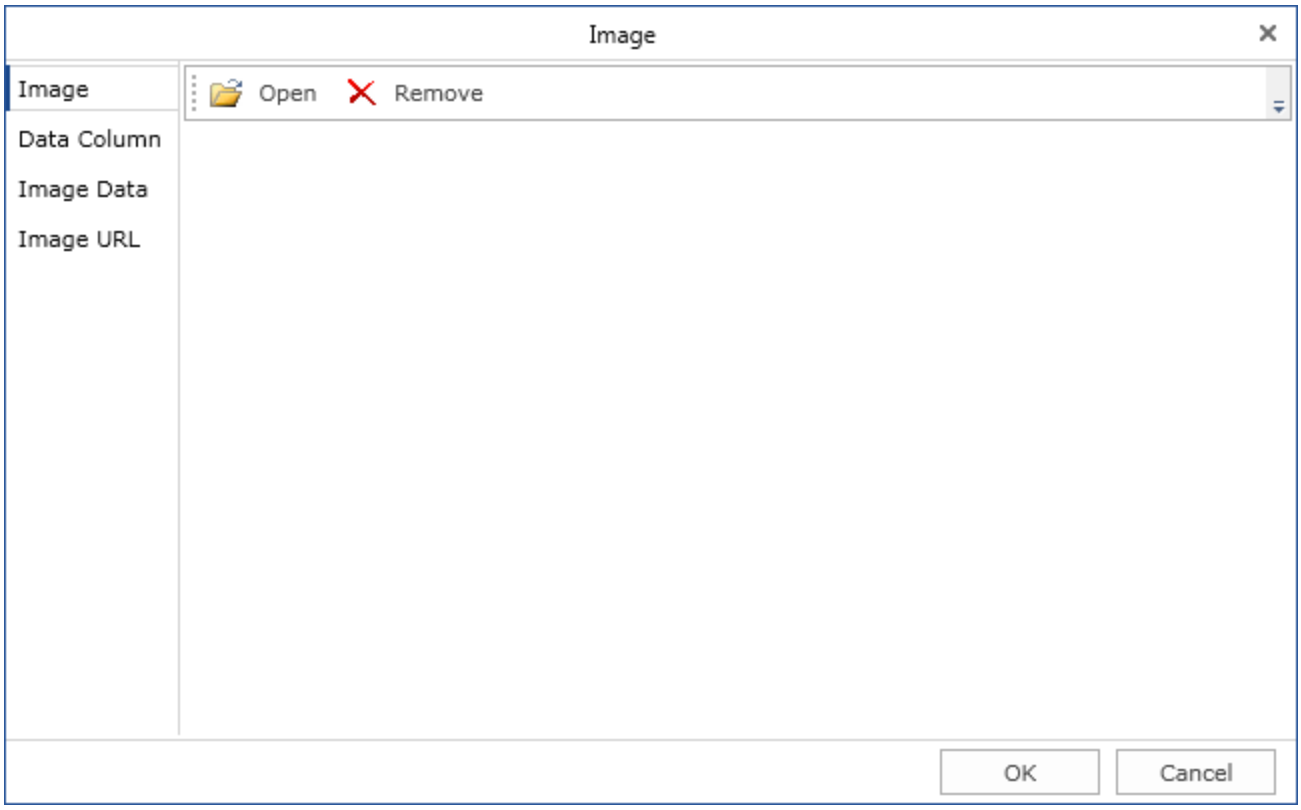


From the field of the data base. Select the field of the data base and, in runtime, the image will be loaded to the **Image** object of a report.

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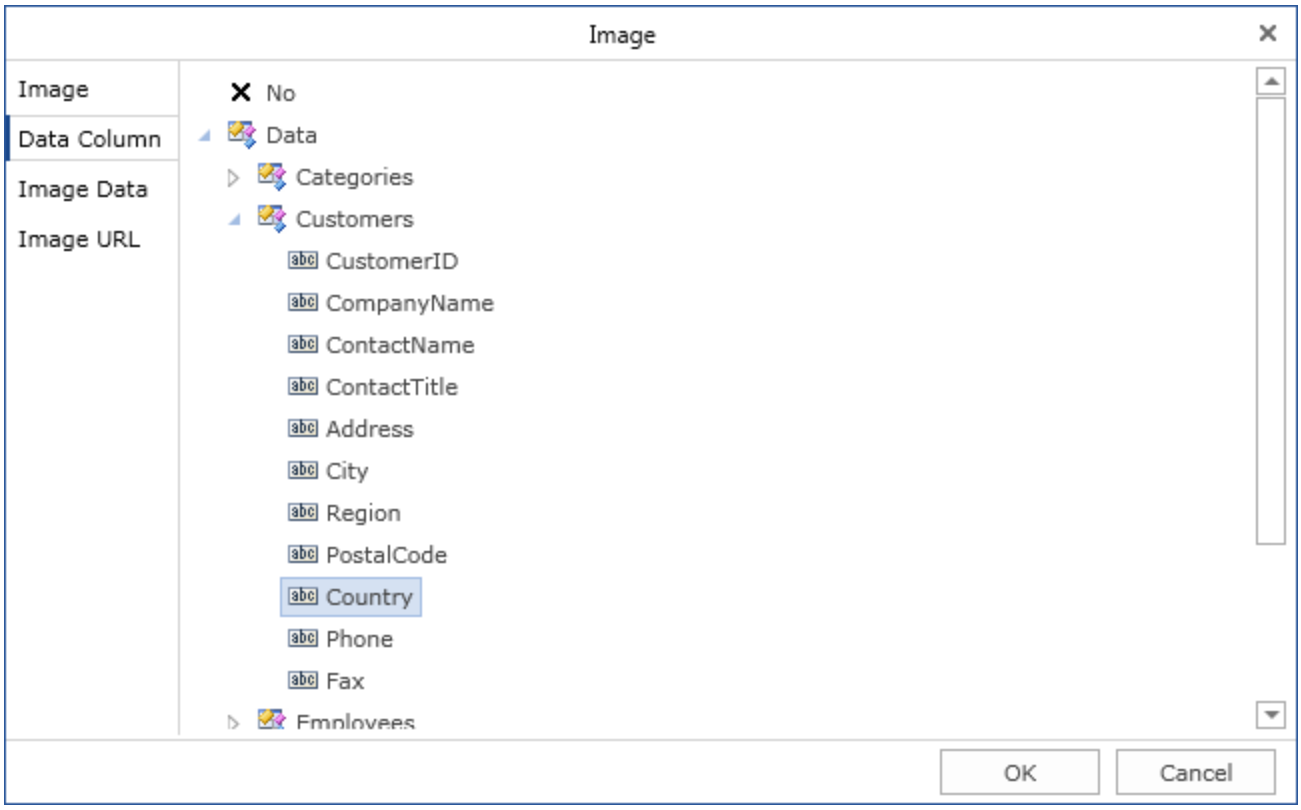


From variable. Create a variable in the data dictionary with the **Image** type. This variable can be used in runtime for working with images.

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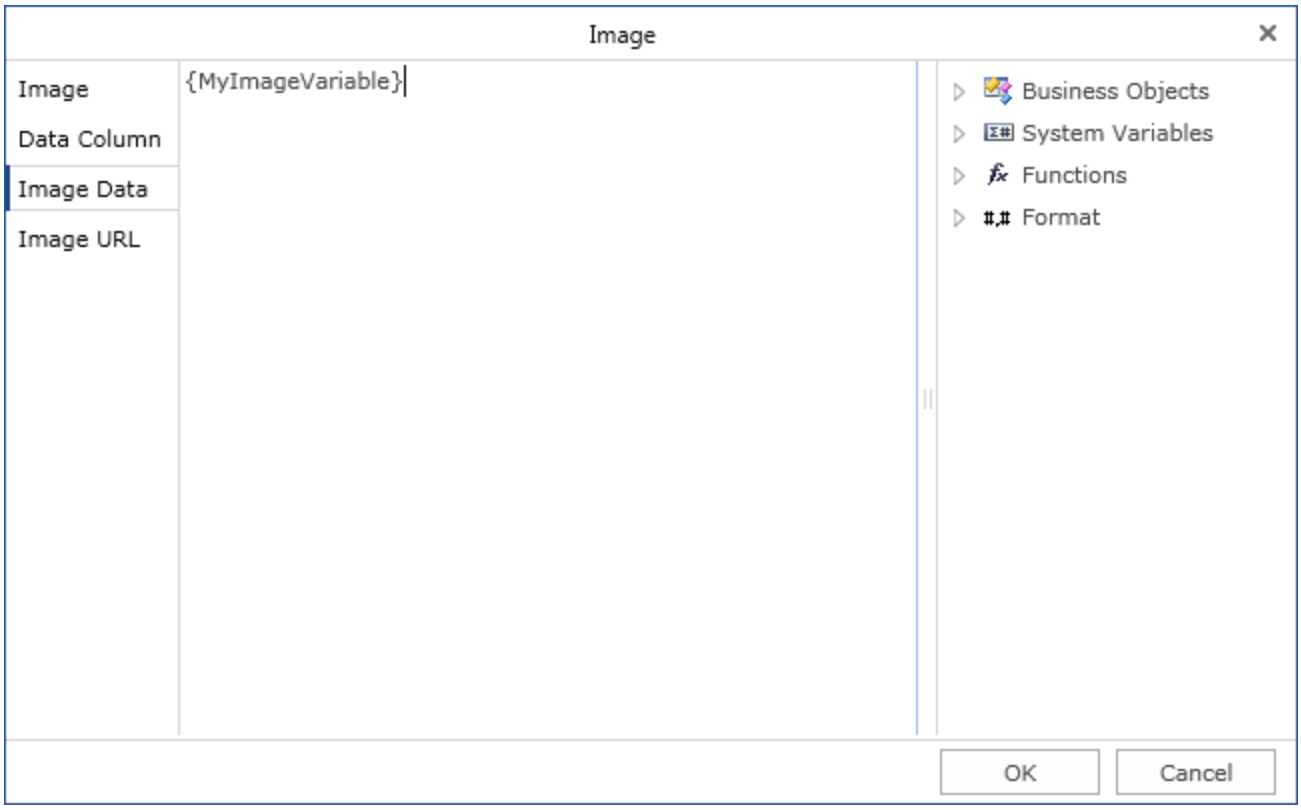


**Notice**. Instead of variable the expression can be used. This expression will return an image.

By the internet link. This way works at runtime.

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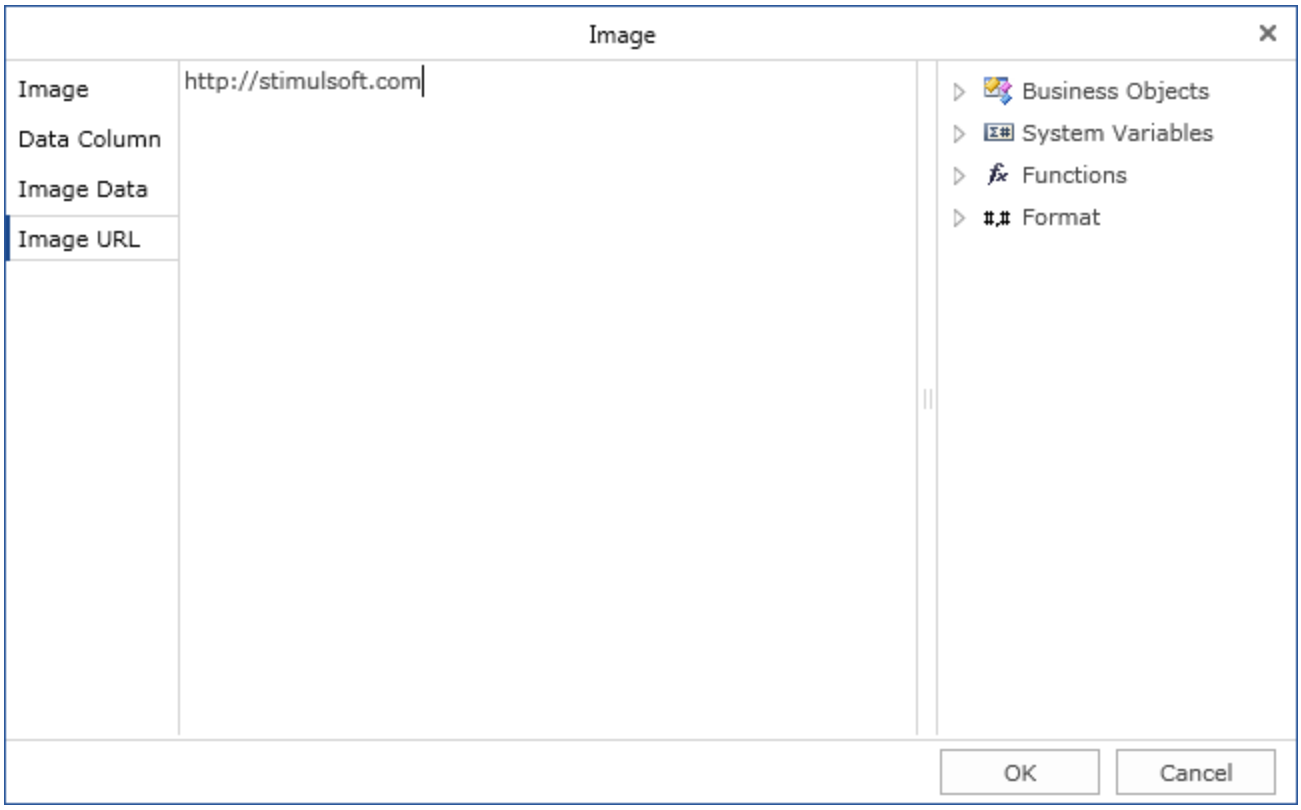


## 5.9 Autosize

Automatic resizing of components is controlled by two properties available in report components: **CanGrow** and **CanShrink**.

**Can Grow**

If the **CanGrow** property is set to true the component can automatically increase its size if the information contained within it does not fit in the space available. If it is set to false the information will be cropped to the component size, as in the examples below:

**Can Shrink**

If the **CanShrink** property is set to true the component can automatically reduce its size so that it fits exactly to the size of the text or image being displayed. If it is set to false the component remains the same size leaving unused space around the information it contains, as in the examples below.

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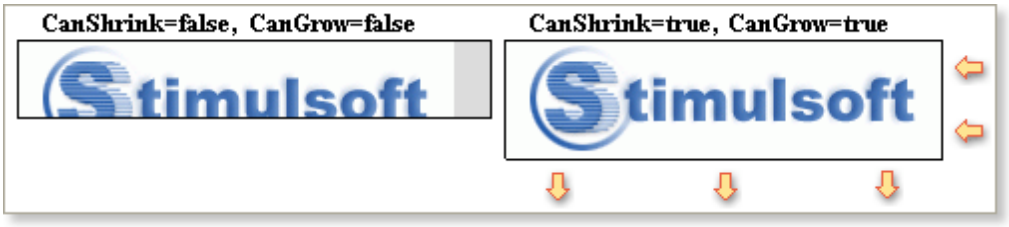
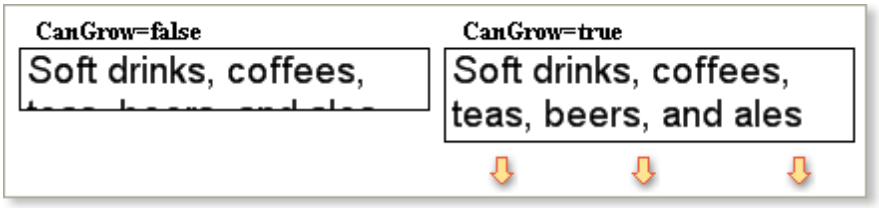
**Using this property will help you to prevent wasted space on report pages**
The report generator allows you to set both **CanGrow** and **CanShrink** properties. If you set both properties to true the component will automatically increase or decrease in size whenever appropriate. The example below shows an image component that is not large enough to support the height of the image but is too wide for the image width. By setting the **CanGrow** and **CanShrink** properties to true the size of the component changes automatically and exactly matches the size of the image.




## 5.9.1 Automatically Resizing Text

The automatic resizing of text behaves differently from other components. The **CanGrow** and **CanShrink** properties affect only the height of a text component and not the width. The example below shows an example of the **CanGrow** property causing the text height to change:




The **CanShrink** property works in the opposite way, so if it is set to true and there is more space than is needed for the text the report generator will automatically decrease the height of the text component.

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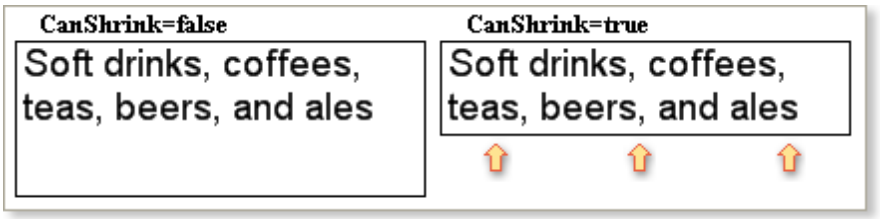
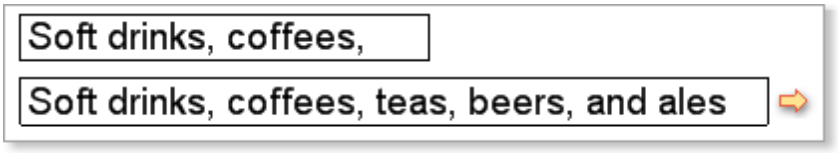



As with other components it is possible to set both properties to true. In this case, the height will automatically increase or decrease depending on the size of a text.

**WordWrap Property**
The **WordWrap** property controls whether or not the text in the control automatically wraps when it becomes too long to fit in a single line. If the **WordWrap** property is set to false then the text is cropped at the border of the component, but when set to true new lines are created until all the text is displayed on multiple lines.

When automatically resizing a text component with the **WordWrap** property set to false the report generator will calculate the new size based on the height of a single line only. If you want the report generator to increase the height of the component based on all the text lines then the value of the **WordWrap** property should be set to true so that the text automatically wraps and the calculation can be based on the combined height of all the text lines.

**The AutoWidth property**
In addition to the **CanGrow** and **CanShrink** properties the **AutoWidth** property can affect the way a text component changes size. If the **AutoWidth** property is set to true then the text component will automatically change its width to match the width of the text. The **CanGrow**, **CanShrink**, and **AutoWidth** properties can be used simultaneously.




If the **WordWrap** property is set to false, then the height of the text depends on settings of the **CanGrow** and **CanShrink** properties. If the **WordWrap** property is set to false, then the width will be automatically changed.

**Important:** If the **WordWrap** property is set to false then the height of the text depends on the **CanGrow** and **CanShrink** properties. If the **WordWrap** property is set to false then it will change the width of the text.

## 5.9.2 Automatically Resizing Panels

Because **Panels** are only containers and output no visual information in the report it may seem that the **CanGrow** and **CanShrink** properties have no relevance, but this is not the case.

Panel components may contain other components which have specified sizes and positions. If some of

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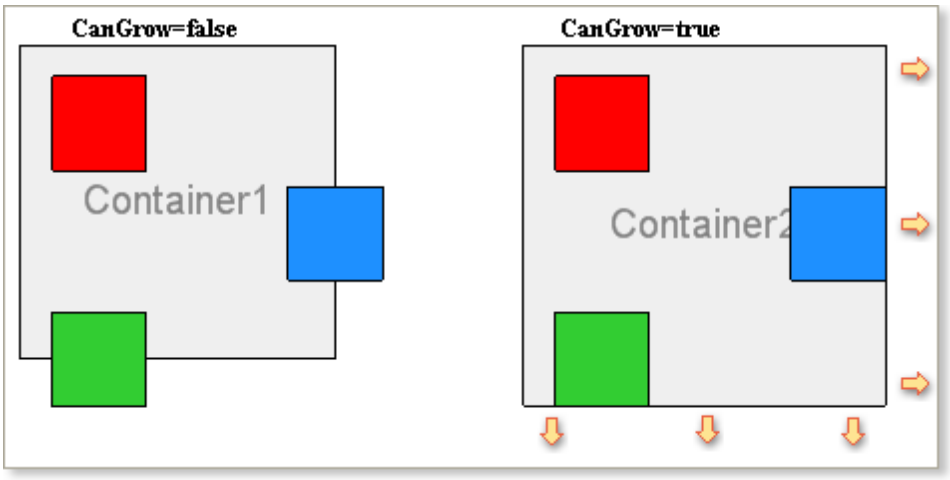
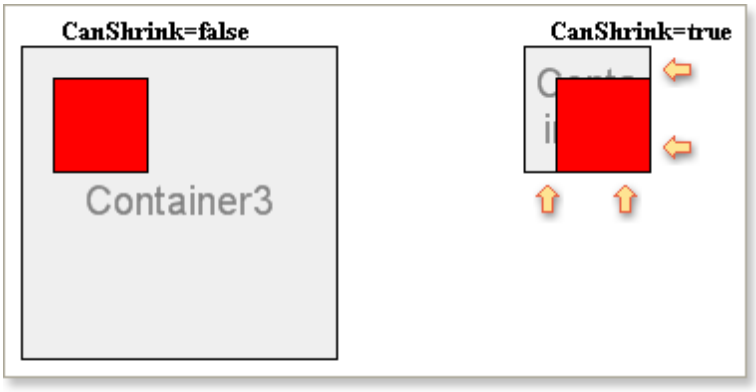
the component positions mean that their boundaries cross the border of the panel then setting the **CanGrow** property to true will cause the panel container to be automatically resized so that the child components are wholly enclosed within it. The picture below shows how the **CanGrow** property works:




If the **CanShrink** property is set to true and the bounds of the combination of all the components contained within it are less than the bounds of the panels the panel size will automatically reduce to match the overall size of all components.




## 5.9.3 Automatically Resizing Bands

Because bands are inherited from **Panels**, they change their size in the same way. The size of the **Band** can be automatically changed depending on the size of components positioned on the band.

**CanGrow Property**

It should be noted that most types of band can only automatically change their height - the exception is cross-bands which change their width. For example, if there is a component on the band which crosses the lower boundary and you set the **CanGrow** property of the band to true, the band height will be automatically increased until the entire component is contained within the band:

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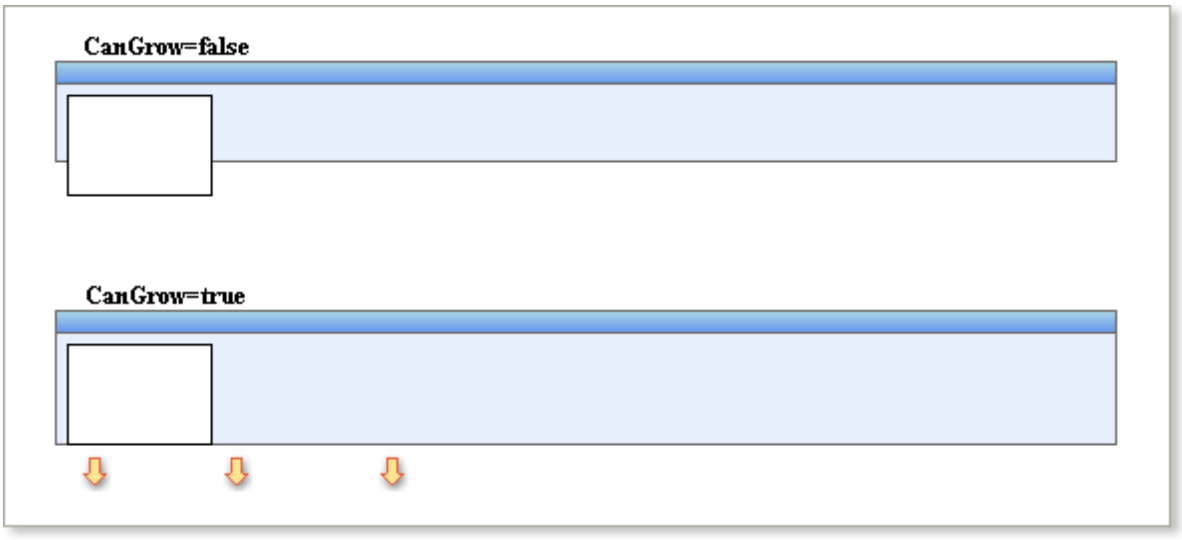


**CanShrink Property**

Similarly if there is free space between the boundary of a band and the lower border of the tallest component that it contains and you set the **CanShrink** property to true, the height of the band will automatically be reduced until it matches the lowest point of the lowest contained component:

## 5.9.4 Binding Bottom Border of Component

Typically there will be more than one component on a band, as in the example shown below:

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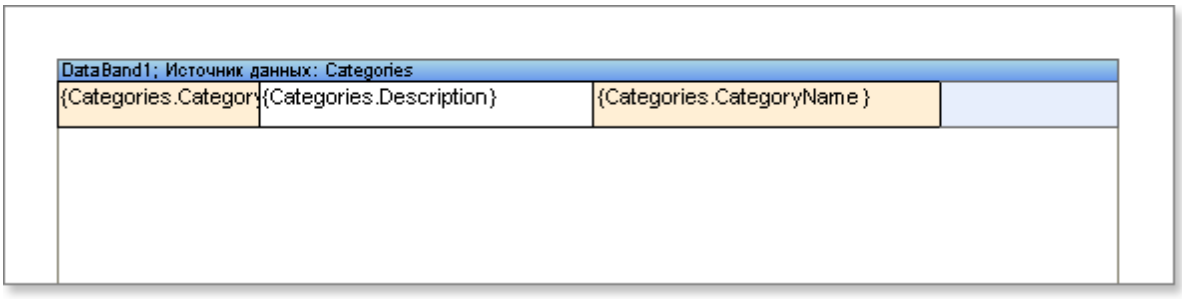
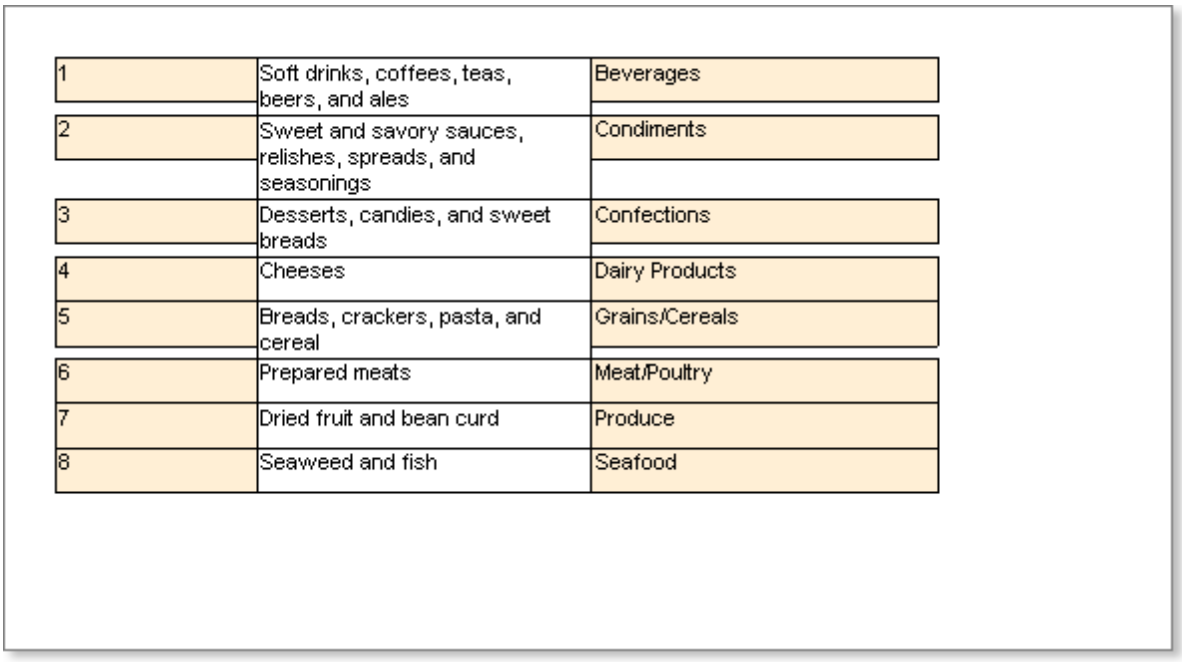



When rendering a report the height of some of the components may be changed automatically to suit the size of their contents which can result in unwanted breaks in the layout as shown below:



| | | |
|---|---|---|
| 1 | Soft drinks, coffees, teas, beers, and ales | Beverages |
| 2 | Sweet and savory sauces, relishes, spreads, and seasonings | Condiments |
| 3 | Desserts, candies, and sweet breads | Confections |
| 4 | Cheeses | Dairy Products |
| 5 | Breads, crackers, pasta, and cereal | Grains/Cereals |
| 6 | Prepared meats | Meat/Poultry |
| 7 | Dried fruit and bean curd | Produce |
| 8 | Seaweed and fish | Seafood |

In order to prevent this occurring you can bind the bottom border of a component to the lower border of the container in which the component is placed. This binding is done using the **GrowToHeight** property.

**GrowToHeight Property**

If you set the **GrowToHeight** property to true all components that do not change their size will have their bottom borders bound to the bottom border of the container.

**Note:** The **GrowToHeight** property binds the bottom border of the component to that of its container whether that container is a **Band** or a **Panel** component.

This will give a consistent and much better looking result as shown below:

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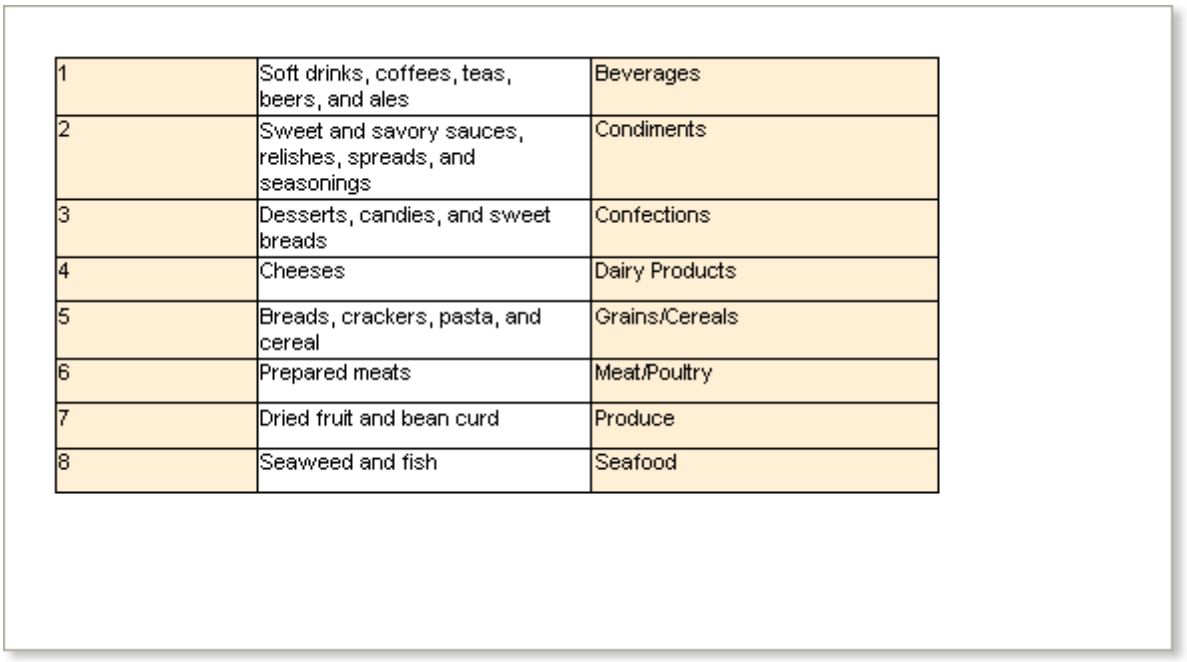

| | | |
|---|---|---|
| 1 | Soft drinks, coffees, teas, beers, and ales | Beverages |
| 2 | Sweet and savory sauces, relishes, spreads, and seasonings | Condiments |
| 3 | Desserts, candies, and sweet breads | Confections |
| 4 | Cheeses | Dairy Products |
| 5 | Breads, crackers, pasta, and cereal | Grains/Cereals |
| 6 | Prepared meats | Meat/Poultry |
| 7 | Dried fruit and bean curd | Produce |
| 8 | Seaweed and fish | Seafood |

By default, the **GrowToHeight** property is set to false.

**Handling Multiple Components**
If there are multiple components on one band that can automatically change their size it is possible set the **GrowToHeight** property for all these components to true. This will cause the height of these components to be automatically adjusted based on the height of the tallest component.

**Note:** The **GrowToHeight** property can be set for components which automatically change their size as well as those that do not. In this case, if the bottom border is not matched to the bottom border of its container the size of this component will be automatically adjusted to suit.

## 5.9.5 Automatically Shifting Components

Automatically changing the size of components can lead to a problem when rendering reports - what happens when a change in the size of one component has an adverse effect on another component in the report? For example, if the height of the first component is increased it could overlap a component placed below it.

To prevent this problem the **ShiftMode** property is used.

**ShiftMode Property**
The **ShiftMode** property allows all components with top borders situated below the top border of an automatically modified component to be automatically shifted down the report so that they maintain the same relative position.

The property has three flag values each of which can be set to **True** or **False**:

- **IncreasingSize**

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- **DecreasingSize**
- **OnlyInWidthOfComponent.**

These work as follows:

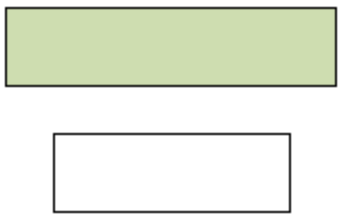
**IncreasingSize**
If this flag is set to true then any increase in the height of the components located above the specified component causes the component to shift down vertically by the same amount. If the flag is set to false then any increase in the height of the higher components is simply ignored, as shown in the example below:

By default this flag is set to true.

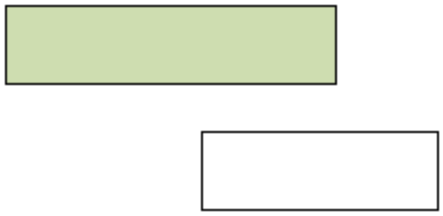
**DecreasingSize**
If this flag is set to true then any decrease the height of the components located above the specified component causes the component to shift up vertically by the same amount. If the flag is set to false then any decrease in the height of the higher components is simply ignored, as shown in the example below:

By default, this flag is set to false.

**OnlyInWidthOfComponent**
If the flag is set to true, it takes into account changes only to those components that have their left boundary less than the left border of the specified component, and the right border more than the left border of this component as in the examples below:



Or:



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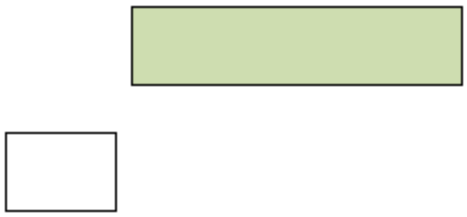
If this flag is disabled, the location of the left border of this component is ignored. For example:



By default this flag is disabled.

## 5.10 Bar-codes

A barcode is an optical machine-readable representation of data typically made up of parallel bars, varying in width, spacing, or height, which are read by barcode readers. In some cases a line of digits can be placed under a barcode which represent in human readable form the data contained in the barcode.

**1D Barcodes**
Most commonly barcodes represent their data in the widths and spacings of printed parallel lines which is why they are called linear or 1D (one-dimensional) barcodes or symbolics. Linear barcodes are read in one direction (horizontally). The following linear barcodes are commonly used:

- EAN;
- UPC;
- Code39;
- Code128;
- Codabar;
- Interleaved 2 of 5.

Linear symbolics allow the coding of small amounts of information content (a maximum of 20-30 digits or symbols) and the devices that read them are considered to be simple scanners.

**2D Barcodes**
2D (two-dimensional) barcodes or symbolics are used for coding large amounts of information in a bar code, potentially up to several pages worth. Such a barcode would consist of square cells, dots, hexagons, and other geometrical figures. Special 2D barcode scanners are required to read the barcodes which decode in two dimensions (horizontal and vertical). The following 2D barcodes are the most common:

- **PDF417**;
- **Datamatrix.**

**Setting Barcode Data**
The Code property of the Barcode component is used to specify the code of the bar-code.

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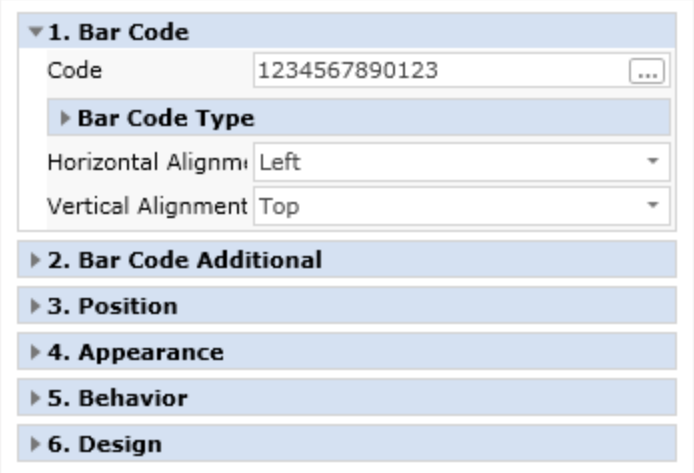


This property is an expression so can be defined either as a literal string or a code calculation that can generate the barcode based on the content of a data field or any other calculation that may be applicable. For example, the Code below is set as a string:

```
1234567890123
```

The Code read from a data field:

```
{Items.Code}
```

**Important:** When using the expression in the Code property in the design mode the expression will be displayed. When viewing the report, it will be replaced by the value.

**Using Bar-code Components**

When using the Bar-code components it is important to remember that changing the sizes of those components within the designer does not lead to a change in the printed or displayed size of the barcodes. All barcodes have to meet a specified standard or it would not be possible to read their data. In many barcodes changing the size of the code is either not allowed or has some limitations. For this reason the size of a barcode is set using special properties. All these properties can be found in the Properties panel of the barcode. For example, on the picture below the Properties panel of the EAN-128a barcode is shown. This particular barcode allows the user to set the BarcodeHeight and BarCodeModules.

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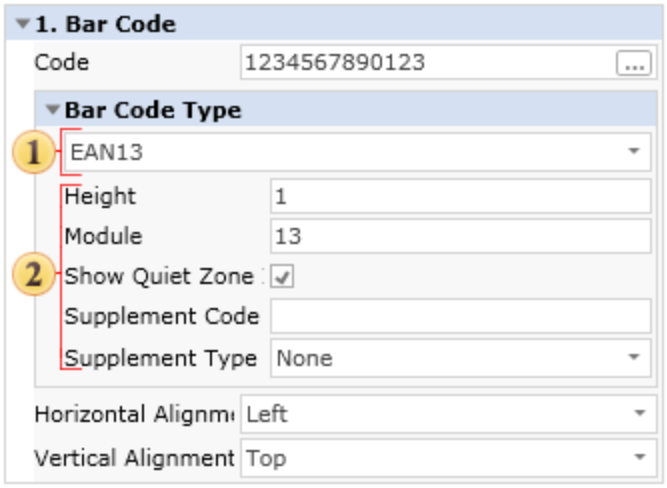


1. The bar-code type.
2. The bar-code properties.

## 5.10.1 Bar-code Size

Barcode sizes are very important if they are to read successfully by scanners. Each type of barcode is defined using the following size parameters:

**Density**
A mil is used to specify the barcode density.

1 mil = 1/1000 inch

**Module**
Module parameter ("Module", sometimes referred to as the "X dimension") indicates the narrowest bar of a barcode. This parameter is connected with the printing resolution of a barcode and the barcode density. For example, if the narrowest bar is 10 mils it is said that the barcode is printed with 10 mil resolution or that the density of the barcode is 10 mil.

**Density**
There are two elements of density - the graphics density and information density of a barcode.

**Information Density**
The information density is the number of characters that can be encoded per inch given a certain X value. The smaller the value of X, the more characters can be encoded in an inch and, thus, the density rises. The information density of a bar-code depends on the character encoding. The less the number of bars and spaces required to encode one symbol the higher the information density of the bar-code.

**Graphics Density**
The graphics density of the barcode is connected with the bar-code size. The classification of graphic linear barcodes is shown in the table below:

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-

| Graphics density | Printing resolution |
|---|---|
| Very high density | < 4 mils |
| High density | 4 mils .. 6 mils |
| Medium density | 7 mils .. 13 mils |
| Low density | 14 mils .. 20 mils |
| Very low density | > 20 mils |

**Width**
The barcode width depends on the graphic and information density. The density is limited by the resolution of the printer and scanner, but the barcode width depends on the information density of the symbolic. Different symbolics may have different barcode widths even if their graphic density is the same.

**Height**
The height of the barcode is needed only to allow scanners to easily read it. Usually the best barcode length is based on the ratio of height to width of around 1:5-6.

**Spaces**
This is a very important attribute, especially for linear barcodes. Spacing is the light regions at the start and the end of the bar-code. They are required for the scanner to identify the bar-code measurements.

## 5.10.2 Linear Bar-codes

There are a great many linear barcode specifications available, including many that are based on the EAN/UPC specification.

### 5.10.2.1 EAN/UPC Based

EAN/UPC barcodes are based on the EAN.UCC system which was created in the USA in 1973 by the Uniform Product Code Council company, now known as Uniform Code Council, Inc. (UCC).

**UPC**
Initially, UCC developed a 12-digit ID and the **UPC** (Uniform Product Code) barcode. The first **UPC** code was scanned in 1974.

**EAN**
After successful implementation of the **UPC** system in 1977 the European Article Numbering Association format was created as a superset of the UCC system and uses 13-digit identification numbers but the same data structures as UPC barcodes.

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Today global compatibility is reached by using the 14-digit GTIN format. This provides unique identification of goods all over the world.

In this section details of the **UPC-A**, **UPC-E**, **EAN-8**, **EAN-13**, **EAN-128**, **ITF-14** barcodes of "General EAN.UCC Specifications" and based on those the **JAN-8**, **JAN-13**, **ISBN-10**, **ISBN-13** barcodes are displayed.

#### 5.10.2.1.1 What is EAN.UCC System?

The EAN.UCC system appeared in the USA and was created in 1973 by the Uniform Product Code Council company. Now this company is known as Uniform Code Council, Inc. (UCC). Initially, the UCC was developed 12-digit ID and appropriate the **UPC** bar-code (Uniform Product Code). The first **UPC** code was scanned in 1974. After successful implementation of the **UPC** system in 1977 the European Article Numbering Association was created. The **EAN** system was created as superset of the UCC system and uses the 13-digit identification numbers but the same structures of data as bar-codes. So the EAN.UCC system was extended. Today the complete global compatibility is reached by using the 14-digit GTIN format. This provides unique goods ID all over the world.

In this section **UPC-A**, **UPC-E**, **EAN-8**, **EAN-13**, **EAN-128**, **ITF-14** barcodes of "General EAN.UCC Specifications" and based on them **JAN-8**, **JAN-13**, **ISBN-10**, **ISBN-13** barcodes are viewed.

#### 5.10.2.1.2 UPC-A

**UPC-A** was the first barcode, created by Uniform Code Council, Inc. in 1973. The **UPC-A** barcode is an unbroken code with a fixed length and high density. It is used for tracking trade items in stores, and otherwise marking goods.

| | |
|---|---|
| **Valid symbols:** | 0123456789 |
| **Length:** | fixed, 12 characters |
| **Check digit:** | one, modulo-10 algorithm |

**UPC-A** barcodes consist of 11 data digits and one check digit. The first digit is a number system digit that normally represents the type of product being identified. The following 5 digits are a manufacturers code and the next 5 digits are used to identify a specific product.

The barcode contains the following elements:

- 1 digit - system number.
- 5 digits - manufacturer code.
- 5 digits - product code.
- 1 digit - check digit.

The barcode does not contain any information about characteristics of a product, but only a unique number relating to an entry in the International data base where all information about the particular product is stored. An example barcode in **UPC-A** format:

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**UPC-A Barcode**

Note the 'human readable' digits at the foot which can be used by operators if the label becomes damaged or will not scan for some reason - "123456789012" is the number encoded in the barcode.

#### 5.10.2.1.3 UPC-E

A **UPC-E** is a smaller seven digit UPC symbology for number system 0. For **UPC-E** barcodes, normally 6 digits are specified and the barcode calculates the seventh check digit.

| | |
|---|---|
| **Valid symbols:** | 0123456789 |
| **Length:** | fixed, 8 characters |
| **Check digit:** | one, modulo-10 algorithm |

Before the Middle guard bars, a binary 1 is indicated by a bar, while a 0 is indicated by a space. After the Middle guard bars, however, the patterns are optically inverted. In other words, a 1 is now indicated by a space, and a 0 is now indicated by a bar. It has the same basic structure as the **UPC-A** barcode.

**A "UPC-E" barcode.**

Note the 'human readable' digits at the foot which can be used by operators if the label becomes damaged or will not scan for some reason - "1234567" is the number encoded in the barcode.

#### 5.10.2.1.4 EAN-13

The **EAN-13** barcode was created based on the UPC-A barcode as an extension of the EAN.UCC system used outside the USA. EAN-13 is the European version of UPC-A.

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| | |
|---|---|
| **Valid symbols:** | 0123456789 |
| **Length:** | fixed, 13 characters |
| **Check digit:** | one, modulo-10 algorithm |

The structure of EAN-13 barcode is the same as UPC-A. Each bar-code character consist of 2 bars and 2 spaces, which may have a width from 1 to 4 modules. The first digit is always placed outside the symbol, additionally the right quiet zone indicator (>) is used to indicate the Quiet Zones that are necessary for barcode scanners to work properly.

The bar-code contains the following elements:

- 2 (3) digits - country code.
- 5 (4) digits - manufacturer code.
- 5 digits - product code.
- 1 digit - check digit.

The barcode does not contain any information about characteristics of a product, but only a unique number relating to an entry in the International data base where all information about the particular product is stored. An example barcode in EAN-13 format:

**An "EAN-13" barcode.**

Note the 'human readable' digits at the foot which can be used by operators if the label becomes damaged or will not scan for some reason - "123456789012" is the number encoded in the barcode.

5.10.2.1.5 EAN-8

The **EAN-8** bar-code was developed for use on small packages. It is used instead of the EAN-13 bar-code where an EAN-13 barcode would be too large, for example on packets of gum.

| | |
|---|---|
| **Valid symbols:** | 0123456789 |
| **Length:** | fixed, 8 characters |
| **Check digit:** | one, modulo-10 algorithm |

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The structure of the **EAN-8** bar-code is in the same as the structure of the **EAN-13** bar-code. The check digit is calculated automatically irrespective of input data.

The bar-code contains the following elements:

- 3 digits - a prefix of the national organization.
- 4 digits - product code.
- 1 digit - check digit.

This bar-code does not contain the code of the producer and has only 4 digits. As a result there can only be 10000 specimen products per organization, so the **EAN-8** bar-code is provided only to those organizations which really need it.

**An "EAN-8" barcode.**

Note the 'human readable' digits at the foot which can be used by operators if the label becomes damaged or will not scan for some reason - "12345670" is the number encoded in the barcode.

5.10.2.1.6 Add-On Symbols

**Add-on Symbols** (barcodes) can be used in some applications together with the EAN-13, UPC-A, and UPC-E bar-codes. Add-on Symbols may contain 2 or 5 additional digits and are usually placed to the right of the barcode.

| | |
|---|---|
| **Valid symbols:** | 0123456789 |
| **Length:** | fixed, 2 or 5 characters |
| **Check digit:** | no |

**The "UPC-E" bar-code with the "02" Add-On Symbols**

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**The "EAN-13" bar-code with the "00321" Add-on Symbols**

5.10.2.1.7 EAN-128

The **EAN-128** bar-code is a subset of the Code128 barcode which uses a variable length, high density, alphanumeric symbology. It allows the output of 128 characters of ASCII and is effective for digits. There are actually four sub-codes, which can be mixed within a single barcode: **EAN-128a**, **EAN-128b**, **EAN-128c**, and **EAN-128auto** (will automatically switch between code sets to encode the ASCII values).

| | |
|---|---|
| **Valid symbols:** | EAN128a: ASCII character 0 to 95<br>EAN128b: ASCII character 32 to 127<br>EAN128c: pairs of digits from 00 to 99 |
| **Length:** | Variable |
| **Check digit:** | one, modulo-103 algorithm |

The structure of the **EAN-128** bar-code is the same as for the **Code128** bar-code. Elements of the bar-code consist of three bars and three spaces. Bars and spaces have module construction and their width consists of either one or four modules. The width of an element consists of eleven modules.

To difference between the **EAN-128** bar-code and the **Code128** bar-code is that the FNC1 is placed after the start character. This character is reserved for the EAN.UCC system.

**An "EAN-128c" barcode.**

Note the 'human readable' digits at the foot which can be used by operators if the label becomes damaged or will not scan for some reason - "0123456789012345" is the number encoded in the barcode.

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5.10.2.1.8 ITF-14

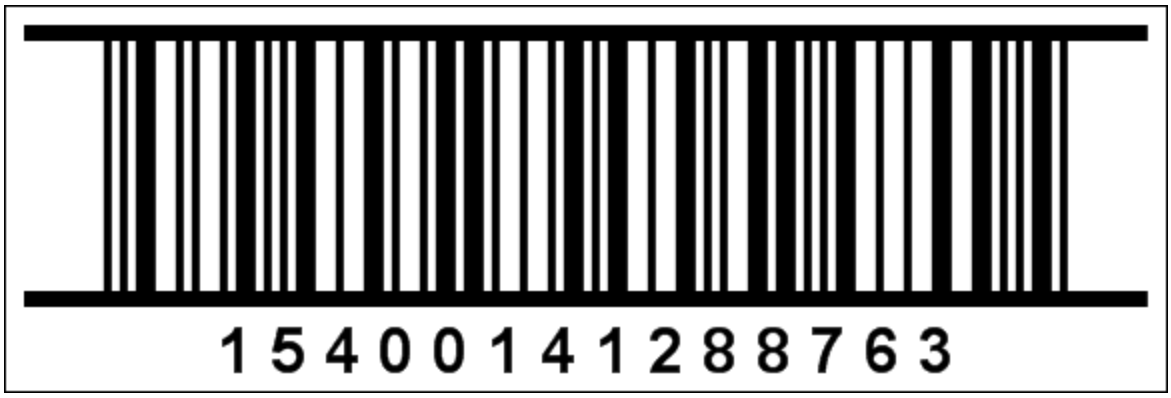
The **ITF-14** bar-code was developed to encode a Global Trade Item Number. The ITF bar-code has the nominal size of (152*44mm) and low requirements to the printing surface. Therefore, it can be printed not only on a label but directly onto a packing carton.

| | |
|---|---|
| **Valid symbols:** | 0123456789 |
| **Length:** | fixed, 14 characters |
| **Check digit:** | one, modulo-10 algorithm |

Each character is encoded using two broad and three narrow bars/spaces. The ITF-14 will always encode 14 digits.

The bar-code contains the following elements:

- 1 digit - logic.
- 3 digits - Global Trade prefix.
- 6 digits - Producer code.
- 3 digits - Product code.
- 1 digit - Check digit.




**An "ITF-14" barcode.**

Note the 'human readable' digits at the foot which can be used by operators if the label becomes damaged or will not scan for some reason - "15400141288763" is the number encoded in the barcode.

5.10.2.1.9 JAN-13

A **JAN-13** barcode is another name for an EAN-13 barcode dedicated for use only in Japan. The first two digits should be 45 or 49 which indicate Japan.

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**A "JAN-13" barcode.**

Note the 'human readable' digits at the foot which can be used by operators if the label becomes damaged or will not scan for some reason - "4901234567894" is the number encoded in the barcode.

5.10.2.1.10 JAN-8

A **JAN-8** barcode is another name for an EAN-8 barcode dedicated for use only in Japan. The first two digits of the barcode should be 45 or 49 to indicate Japan.

**A "JAN-8" barcode.**

Note the 'human readable' digits at the foot which can be used by operators if the label becomes damaged or will not scan for some reason - "49123456" is a number encoded in the barcode.

5.10.2.1.11 ISBN-10

**ISBN** is the abbreviation of International Standard Book Number - a unique, numeric commercial book identifier. Based upon the 9-digit Standard Book Numbering (SBN) code introduced in 1966, 10-digit **ISBN** format was developed in 1970 and became the international standard.

| | |
|---|---|
| **Valid symbols:** | 0123456789 |
| **Length:** | Not variable, 10 symbols |
| **Check digit:** | One |

The **ISBN**, assigned to books of 2006 contained 10 digits length and consist of four fields of variable length:

- For a 13 digit ISBN, a GS1 prefix: 978 or 979.
- The group identifier, (language-sharing country group).

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- The publisher code.
- The item number.
- A checksum character or check digit.

**An "ISBN-10" barcode.**

Note the 'human readable' digits at the foot which can be used by operators if the label becomes damaged or will not scan for some reason - "80-902734-1-6" is the number encoded in the barcode.

5.10.2.1.12 ISBN-13

**ISBN** is the abbreviation of International Standard Book Number - a unique, numeric commercial book identifier. The ISBN-13 specification was Issued from January 2007, and describes how the 13-digit **ISBN** check digit is calculated.

| | |
|---|---|
| **Valid symbols:** | 0123456789 |
| **Length:** | fixed, 13 symbols |
| **Check digit:** | one, algorithm modulo-10 |

The **ISBN** assigned to books after 2006 contained 13 digits length and consist of four fields of variable length:

- prefix: 978 or 979.
- The group identifier, (language-sharing country group).
- The publisher code.
- The item number.
- A checksum character or check digit.

**A "ISBN-13" barcode.**

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Note the 'human readable' digits at the foot which can be used by operators if the label becomes damaged or will not scan for some reason - "978-0-306-40615-7" is a number encoded in the barcode.

### 5.10.2.2 Other Barcodes

#### 5.10.2.2.1 Pharmacode

A **Pharmacode** barcode is used in the pharmaceutical industry as a packing control system. The Pharmacode barcode is placed on the package.

| | |
|---|---|
| **Valid symbols:** | A whole number from 3 to 131070 |
| **Length:** | Variable, 1..6 characters of a digit |
| **Check digit:** | No |

A **Pharmacode** barcode can represent only a single integer from 3 to 131070. All digits in the specified range make correct barcodes, but some of these barcodes can be unreadable because all barcodes are identical. So, the following digits should not be used:

3, 6, 7, 14, 15, 30, 31, 62, 63, 126, 127, 254, 255, 510, 511, 1022, 1023, 2046, 2047, 4094, 4095, 8190, 8191, 16382, 16383, 32766, 32767, 65534, 65535, and 131070.

**A "Pharmacode" barcode. "12345" is a number encoded in the barcode.**

#### 5.10.2.2.2 Plessey

A **Plessey** barcode was created by **Plessey** company in England on March 1971. The Plessey barcode is widely used in libraries, supermarkets, and production environments. A variant of the barcode known as Anker Code and appropriate scanners were provided by the ADS company.

Encoding technology of the **Plessey** barcode was used by MSE Data Corporation. This company used it to create an MSI barcode that sometimes is called 'modified Plessey'.

This bar-code is now obsolete and new scanners cannot read it.

| | |
|---|---|
| **Valid symbols:** | 0123456789ABCDEF |

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| | |
|---|---|
| **Length:** | Variable |
| **Check digit:** | No, one or two;<br>Algorithm modulo-10 or modulo-11 |

**Plessey** is a variable length, numeric-only symbology. It allows to output digits 0..9 and letters A, B, C, D, E, F but more frequently only digits are used. Check digits calculated using the modulo-10 or modulo-11 algorithm can be used. Each character of the bar-code consist of 4 elements. An element consists of a bar and a space and has 3 modules width. If the element is the binary 0 then the bar-code has 1 module width and a space has 2 modules. If the element is the binary 1 the bar has 2 module width and a space has 1 module. So, each character has 12 modules length. Therefore, this bar-code has very low data density.

**A "Plessey" barcode. "1234567890" is a number encoded in the barcode.**

5.10.2.2.3 Msi

The **Msi** bar-code developed by the MSI Data Corporation. It is based on the original Plessey symbology. Sometimes the **Msi** bar-code is called the **Modified Plessey**. The basic implementation of the **Msi** bar-code is used for warehouse shelves and inventory.

| | |
|---|---|
| **Valid symbols:** | 0123456789 |
| **Length:** | Variable |
| **Check digit:** | none, one or two;<br>algorithm modulo-10 or modulo-11 |

**Msi** is a variable length, numeric-only symbology and allows to output digits 0..9. One or two check digits calculated by **modulo-10** or **modulo-11** can be used. Each character of the bar-code consist of 4 elements. If the element is the binary 0 then the bar-code has the 1 module width and a space has 2 modules. If the element is the binary 1 the bar the 2 module width and a space has 1 modules. So, each character has 12 modules length. Therefore, this bar-code has very low data density.

**A "Msi" barcode. "1234567890" is a number encoded in the barcode.**

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5.10.2.2.4 2of5

The **2of5** bar-code was developed 40 years ago. This is a low density variable length numeric. This barcode is used in manufacture and is known as Code 25, Code 25 Standard or Code 25 Industrial. It is very seldom used these days.

| | |
|---|---|
| **Valid symbols:** | 0123456789 |
| **Length:** | Variable |
| **Check digit:** | no |

**A "2of5 Standard" barcode. "1234567890" is a number encoded in the barcode.**

The **2of5 Interleaved** barcode is a high density variable length numeric only symbology that encodes digit pairs in an interleaved manner. This bar-code is developed of the Code 25 Standard. It is usually used in the industrial.

| | |
|---|---|
| **Valid symbols:** | 0123456789 |
| **Length:** | Variable, even |
| **Check digit:** | No |

**A "2of5 Interleaved" barcode. "1234567890" is a number encoded in the barcode.**

5.10.2.2.5 FIM

Facing Identification Mark (**FIM**) is the type of postal bar code used in automated mail processing by the U.S. Postal Service. FIM is a set of vertical bars. FIM patterns are placed in the upper right corner along the top edge and two inches in from the right edge of letters and cards.

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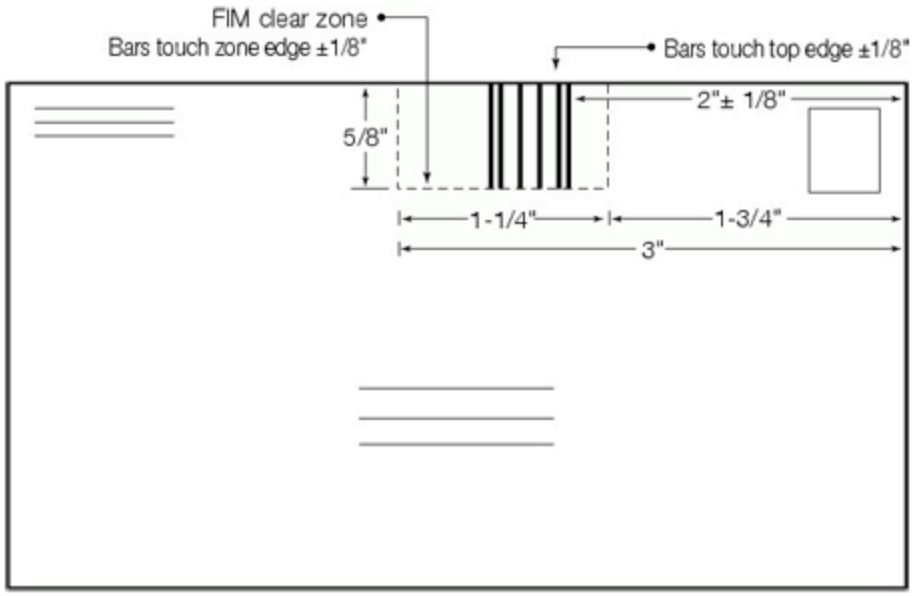



**The FIM bar-code on a card**

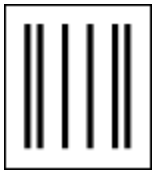
The table below shows basic parameters of the **FIM** bar-code.

| | |
|---|---|
| **Valid symbols:** | ABCD |
| **Length:** | Fixed, 1 symbol |
| **Check digit:** | No |

The **FIM** bar-code consists of nine elements. Each element can be 1 (vertical bar) or 0 (space). Four bar-codes are used:

FIM A: 110010011
FIM B: 101101101
FIM C: 110101011
FIM D: 111010111

So the data row should contain 1 of 4 available characters: A, B, C, D.



**A "FIM C" barcode**

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5.10.2.2.6 Codabar

The **Codabar** is a linear barcode symbology developed in 1972. It can be called as NW-7, USD-4, Code 2 of 7 (2 values of a bar length, 7 elements). It is frequently used in medicine (for example, blood bank forms).

| | |
|---|---|
| **Valid symbols:** | 0123456789 - $ : / . +<br>ABCD (only as start/stop symbols) |
| **Length:** | Variable |
| **Check digit:** | no |

Two bars and three spaces are used for encoding. The bar-code has four different sets of start/stop characters: A, B, C, D. These characters are used only as start/stop characters and should not be appeared in the bar-code.

**A "Codabar" barcode. "A12345678A" is a number encoded in the barcode.**

5.10.2.2.7 Postnet

The **POSTNET** (POSTal Numeric Encoding Technique) bar-code was developed by the United States Postal Service for encoding ZIP-codes and correct sorting using BCSs. It can encode ZIP, ZIP+4, and ZIP+4+2 postal codes.

| | |
|---|---|
| **Valid symbols:** | 0123456789 |
| **Length:** | Fixed, 5, 9 or 11 characters |
| **Check digit:** | One, algorithm modulo-10 |

The Postnet bar-code can encode 0-9 digits. The bar-code consist of short and long bars. Each symbol of data is encoded using five bars. This bar-code contains only one check symbol, that is calculated by the modulo-10 algorithm.

**A "Postnet" barcode. "11387975204" is a number encoded in the barcode.**

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5.10.2.2.8 Australia Post 4-state

The **Australia Post 4-Stage** bar-code is used in Australia for the purposes of sorting and directing mail.

| | |
|---|---|
| **Valid symbols:** | 0123456789 |
| **Length:** | FCC - fixed, 2 characters,<br>DPID - fixed, 8 characters,<br>CustomerInfo variable |
| **Check digit:** | Four, ReedSolomon algorithm |

The barcode consists of 4 elements (4 conditions), each has its own name, value. Each element consists of two bars and two spaces. Each barcode contains 4 check symbols, calculated by the ReedSolomon algorithm. The value of these symbols are usually printed after the text of the barcode.

The string may contain the following parts:

- FCC ("Format Control Code"), 2 digits. May have the following values 11, 45, 87, 92, 59, 62, 44.
- DPID ("Delivery Point Identifier" or "Sorting Code"), 8 digits.
- CustomerInfo may contain 0-9, A-Z, a-z, # symbols and space. The maximal length depends on FCC:

Notes:

If FCC = 11, 45, 87, 92 then the CustomerInfo in ignored.
If FCC = 59 then the CustomerInfo may contain 8 digits or 5 letters/digits.
If FCC = 62, 44 then the CustomerInfo may contain 15 digits or 10 letters/digits.

**A "Australia Post 4-state" barcode. "1138797520" is a number encoded in the barcode.**

5.10.2.2.9 Royal TPG Post KIX 4-State

This symbology is used by Royal Dutch TPG Post (Netherlands) for Postal code and automatic mail sorting. It provides information about the address of the receiver. This symbology encodes alpha-numeric characters (0-9, A-Z). The barcode is also known as Royal TNT Post Kix, Dutch KIX 4-State Barcode, Kix Barcode, TPG KIX, Klantenindex Barcode, TPGPOST KIX.

| | |
|---|---|
| **Valid symbols:** | 0123456789<br>ABCDEFGHIJKLMNOPQRSTUVWXYZ |

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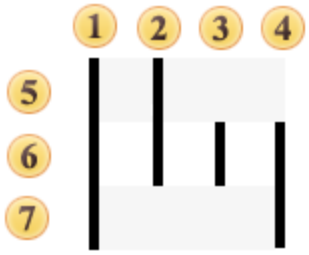
| | |
|---|---|
| **Length:** | Variable |
| **Check digit:** | none |

The barcode consists of four types of bars. The Barcode structure is shown in the picture below:




1. Full bar;
2. Ascender;
3. Tracker;
4. Descender;
5. Ascending Region;
6. Tracking Region;
7. Descending Region.

**A Royal TPG Post KIX 4-State Barcode. "1234567890123" is a number encoded in the barcode.**

5.10.2.2.10 Royal Mail 4-state

The **Royal Mail 4-state** is a barcode symbology for use in automated mail sort process. There are 38 valid characters in the entire character set:

| | |
|---|---|
| **Valid symbols:** | numeric characters 0-9;<br>alpha characters A-Z |
| **Length:** | Variable |
| **Check digit:** | none |

A barcode consists of four bars, of which two are ascenders and two descenders. The tracking region is present in all bars.

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1 Ascending Region;
2 Tracking Region;
3 Descending Region.

**A Royal Mail 4-state Barcode. "1234567890123" is a number encoded in the barcode.**

5.10.2.2.11 Code11

The **Code 11** bar-code was developed by **Intermec** in 1977. It is used in telecommunications.

| | |
|---|---|
| **Valid symbols:** | 0123456789 - |
| **Length:** | Variable |
| **Check digit:** | None, one or two; modulo-10 algorithm |

This barcode has high density and can encode any length string consisting of the digits 0-9 and the dash character. The **Code 11** uses one or two check digits and two check symbols. Usually, if the length of the string is less than 10 symbols then only one check symbol is used. If the length of the string is 10 symbols and more then 2 check symbols are used. The value of the check symbol is calculated by the modulo-10 algorithm.

**A "Code 11" barcode. "12345-6789" is a number encoded in the barcode.**

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5.10.2.2.12 Code39

Code 39 is a variable length symbology that can encode 44 characters. Code 39 is the most popular symbology in the non-retail world and is used extensively in manufacturing, military, and medicine applications.

| | |
|---|---|
| **Valid symbols:** | 0123456789<br>ABCDEFGHIJKLMNOPQRSTUVWXYZ<br>-.$/+% space |
| **Length:** | Variable |
| **Check digit:** | No, according to the specification;<br>In practice - one, modulo-43 algorithm |

Each Code 39 bar code has a start/stop character represented by an asterisk (*).The bar-code code does not contain the check character but can be added programmatically. Each character starts with a 'dark bar' that consists of 5 dark and 4 blank bars. The ratio between narrow and wide bars may range from 2.2:1 to 3:1.

The Code 39 barcode has low data density. It requires more free space than Code 128, but the Code 39 barcode can be identified by any barcode scanner.

**A "Code 39" barcode. "ABC-123" is a number encoded in the barcode.**

**Code 39 extended** is the version of the **Code 39** bar-code which also supports the ASCII set of characters. The 0-9, A-Z, "." and "-" characters are encoded the same as of the **Code 39** bar-code.

**A "Code 39 extended" barcode. "Abc+" is a number encoded in the barcode.**

**Note:** Barcode scanners cannot differentiate between the Code 39 and Code 39 extended barcodes. It is necessary to select the correct barcode either by setting a property on the scanner or programmatically.

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5.10.2.2.13 Code93

The **Code 93** is a variable length symbology that can encode the complete 128 ASCII character set. This barcode was developed as an enhanced version of the Code 39 barcode. It has a higher density than either the Code 39 or the Code 128 bar-code.

| | |
|---|---|
| **Valid symbols:** | 0123456789<br>ABCDEFGHIJKLMNOPQRSTUVWXYZ<br>-.$/+% space |
| **Length:** | Variable |
| **Check digit:** | Two, algorithm modulo-47 |

The Code 93 barcode may encode Latin letters (from A to Z), digits (from 0 to 9) and a group of special characters. The barcode always contains two check characters. Each characters consist of nine modules which are joined in 3 groups. Each group has one black bar and one white bar.

**A "Code 93" barcode. "ABC-123" is a number encoded in the barcode.**

**Code 93 extended** is a version of the **Code 93** barcode that supports a set of ASCII characters. All additional symbols are encoded as a sequence of two **Code 93** characters. The first character is always one of four special characters. Therefore, scanners can always identify the different versions of the bar-code.

**A "Code 93 extended" barcode. "Abc+" is a number encoded in the barcode.**

5.10.2.2.14 Code128

The **Code128** barcode was developed in 1981. It is a variable length, high density, alphanumeric symbology. It allows the output of 128 characters of ASCII and is effective for digits. There are actually four sub-codes, which can be mixed within a single barcode: **Code128a**, **Code128b**, **Code128c**, and **Code128auto** (will automatically switch between code sets to encode the ASCII values).

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| | |
|---|---|
| **Valid symbols:** | Code128a: ASCII character 0 to 95<br>Code128b: ASCII character 32 to 127<br>Code128c: pairs of digits from 00 to 99 |
| **Length:** | Variable |
| **Check digit:** | One, algorithm modulo-103 |

The barcode consist of three bars and three spaces. Bars and spaces have module construction and their width consist of one or four modules. The width of an element consist of eleven modules. The "Stop" sign consist of 13 modules and has four bars and three spaces. The check sum is calculated automatically.

**A "Code128c" barcode. "0123456789012345" is a number encoded in the barcode.**

### 5.10.2.3 Barcode Comparison Table

The table below shows the list of linear bar-codes supported by Stimulsoft Reports.

| Type | Length | Check symbols | Checksum algorithm | 0-9 | A-Z | a-z | other symbols |
|---|---|---|---|---|---|---|---|
| UPC-A | 12 | 1 | modulo-10 | + | | | |
| UPC-E | 8 | 1 | modulo-10 | + | | | |
| EAN-13 | 13 | 1 | modulo-10 | + | | | |
| EAN-8 | 8 | 1 | modulo-10 | + | | | |
| EAN-128a | var | 1 | modulo-103 | + | + | ASCII 0 to 95 | |
| EAN-128b | var | 1 | modulo-103 | + | + | + | ASCII 32 to 127 |
| EAN-128c | var | 1 | modulo-103 | + | | | |
| ITF-14 | 14 | 1 | modulo-10 | + | | | |
| JAN-13 | 13 | 1 | modulo-10 | + | | | |
| JAN-8 | 8 | 1 | modulo-10 | + | | | |

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| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ISBN-10 | 10 | 1 | modulo-10 | + | | | |
| ISBN-13 | 13 | 1 | modulo-10 | + | | | |
| Pharmacode | 1..6 | - | - | int 3..131070 | | | |
| Plessey | var | 0-2 | modulo-10/11 | + | A B C D E F | | |
| Msi | var | 0-2 | modulo-10/11 | + | | | |
| 2of5 Standard | var | - | - | + | | | |
| 2of5 Interleaved | var | - | - | + | | | |
| FIM | 1 | - | - | A B C D | | | |
| Codabar | var | - | - | + | - $ : / . + | | |
| Postnet | 5, 9, 11 | 1 | modulo-10 | + | | | |
| Australia Post | 10 [+var] | 4 | ReedSolomon | + | | | |
| Code 11 | var | 0-2, A | modulo-11 | + | - | | |
| Code 39 | var | 0-1 | modulo-43 | + | + | - . $ / + % space | |
| Code 39 ext | var | 0-1 | modulo-43 | + | + | + | full ASCII |
| Code 93 | var | 2 | modulo-47 | + | + | -.$/+% space | |
| Code 93 ext | var | 2 | modulo-47 | + | + | + | full ASCII |
| Code128a | var | 1 | modulo-103 | + | + | ASCII 0 to 95 | |
| Code128b | var | 1 | modulo-103 | + | + | + | ASCII 32 to 127 |
| Code128c | var | 1 | modulo-103 | + | | | |

Explanation:

- ✓ "Length" - is the data length, it is the number of characters, which can the bar-code can encode; "var" means the variable length.
- ✓ "Check symbols" - possible number of check digits; "A" means that number of check digits can be chosen automatically.
- ✓ "Checksum algorithm" - the algorithm for calculating check digits.
- ✓ "0-9", "A-Z", "a-z" - ranges of symbols; + means that the bar-code can encode characters of this

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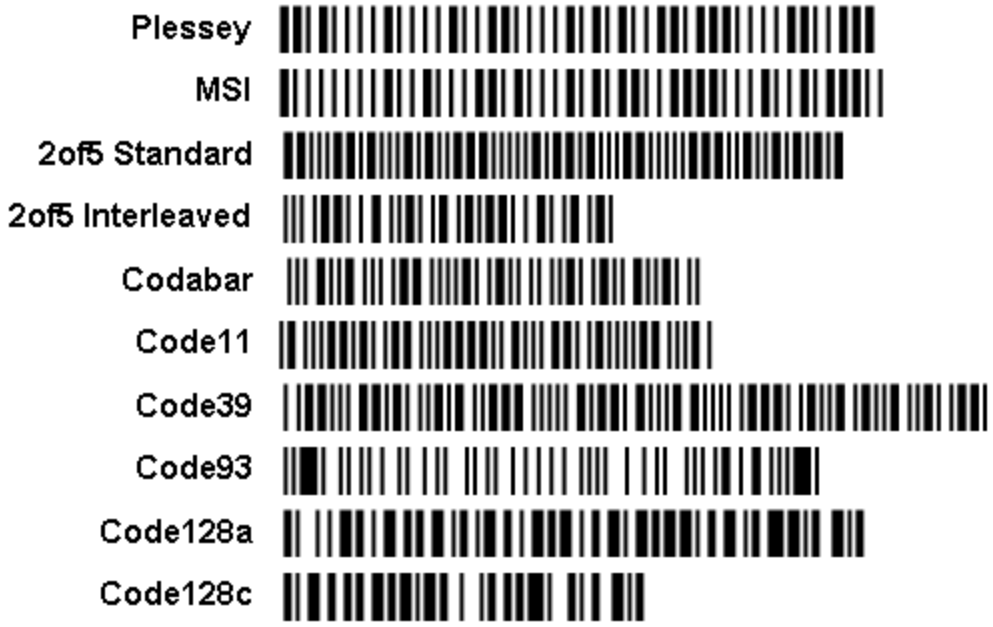
range.

- "other symbols" - other symbols which the bar-code can encode.

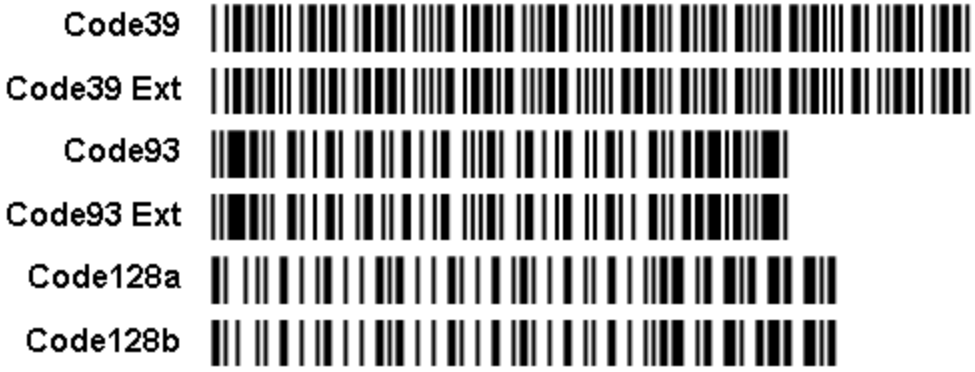
**Barcode Sizes**

Below is a comparison of bar-codes of variable length, which can encode the numbers 0 to 9. All bar-codes have the same input data - the row has "ABCDEFGHIJK", and the same module 20, other parameters set by default.




**Coding English Uppercase Letters**

Below is a comparison of the barcodes of variable length which can encode uppercase English letters. All barcodes have the same input data - the row has "ABCDEFGHIJK", and the same module 20, other parameters set by default.




**Coding English Lowercase Letters**

Below is a comparison of the barcodes of variable length, which can encode lowercase English letters. All bar-codes have the same input data - the row has "abcdefghijk", and the same module 20, other

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parameters set by default.

## 5.10.3 2D Barcodes

A matrix code, also known as a 2D barcode or simply a 2D code, is a two-dimensional way of representing information. It is similar to a linear (1-dimensional) barcode, but has more data representation capability. Today a lot different symbolics of 2D bar-codes are available. Stimulsoft Reports supports three most popular bar-codes: **PDF417 Datamatrix**, and **QR Code**.

### 5.10.3.1 PDF417

The **PDF417** barcode was developed by Symbol Technologies in 1991. The name of the barcode consist of 2 parts. The PDF comes from Portable Data File. The 417 comes from the structure of the bar-code: each bar-code character consists of 17 modules, each of which consists of 4 bars and 1 space.

**PDF417** is a high density 2 dimensional bar code symbology that consists of a stacked set of smaller bar codes. Any ASCII characters can be encoded in this bar-code. The length of data depends on the encoding mode and can reach 1100 bytes, or 1800 text characters, or 2600 digits.

The bar-code contains from 3 to 90 rows each of which is like a small linear bar code. Each row has:

- A quiet zone.
- A start pattern which identifies the type of symbol as PDF417.
- A "row left" codeword containing information about the row.
- A "row right" codeword with more information about the row.
- A stop pattern.
- A quiet zone.

The bar-code may have any number of rows and columns (patterns in the data row), although the total number of patterns should not be greater then 928. The number of rows and columns can be set using the DataRows and DataColumns properties. If the AutoDataRows and AutoDataColumns properties are set to false, then the bar-code size will be fixed. If one of these properties is set to true, then the bar-code size can increased and decreased in this direction depending on data. If both of these properties are set to true, then the size of the bar-code is set automatically, considering the "AspectRatio" parameters (the ratio of the bar-code width to the bar-code height) and RatioY (the height of the code word in modules, from 2 to 5).

It is possible to select one of three modes of data encoding depending on the type of encoded information. Each mode allows encoding has its own set of characters and its own rate of compression.

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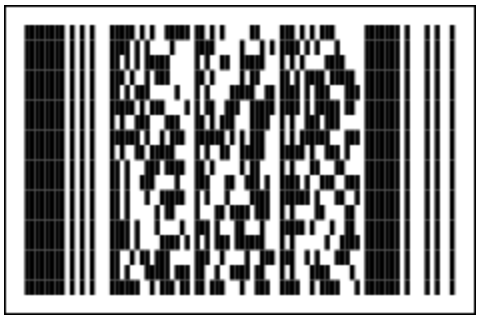
| Encoding mode | Valid symbols | Compression |
|---|---|---|
| Byte | ASCII 0 to 255 | 1,2 bytes per word |
| Text | ASCII 9,10,13 & 32-127 | 2 characters per word |
| Numeric | 0123456789 | 2,9 digits per word |

The bar-code contains levels of error corrections: even if the bar-code is damaged, it will be read. There are 9 levels of error corrections shown in the table below:.

| Level of Error Correction | Number of Codewords |
|---|---|
| 0 | 2 |
| 1 | 4 |
| 2 | 8 |
| 3 | 16 |
| 4 | 32 |
| 5 | 64 |
| 6 | 128 |
| 7 | 256 |
| 8 | 512 |

To set the level of correction the **ErrorsCorrectionLevel** property can be used. This property can be set to "Auto", in which case the level will be set automatically.



A "PDF417" barcode.

#### 5.10.3.2 Datamatrix

The **DataMatrix** barcode was created by the CiMatrix company. Every DataMatrix is composed of two solid adjacent borders in an "L" shape (called the "finder pattern") and two other borders consisting of

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alternating dark and light "cells" or modules (called the "timing pattern"). Symbol sizes vary from 8×8 to 144×144. The **DataMatrix** is used to mark small products.

Data Matrix symbols are rectangular in shape and usually square, they are made of cells: little elements that represent individual bits.

The bar-code contains error correction codes so the bar-code can be read even if it is partially damaged. There are two main versions of this barcode: the first version is called ECC-000 or ECC-140. The second version is described as ECC-200 version, and uses the Reed-Solomon method for error correction. In Stimulsoft Reports the second version of this bar-code is used.

The bar-code consist of black and white square elements, which are joined into square or rectangular regions. Symbol sizes vary from 8×8 to 144×144. All available combinations of sizes is shown on the table below:

| Bar-code size | Length, bites | Bar-code size | Length, bites |
|---|---|---|---|
| 10 × 10 | 3 | 32 × 32 | 62 |
| 12 × 12 | 5 | 36 × 36 | 86 |
| 8 × 18 | 5 | 40 × 40 | 114 |
| 14 × 14 | 8 | 44 × 44 | 144 |
| 8 × 32 | 10 | 48 × 48 | 174 |
| 16 × 16 | 12 | 52 × 52 | 204 |
| 12 × 26 | 16 | 64 × 64 | 280 |
| 18 × 18 | 18 | 72 × 72 | 368 |
| 20 × 20 | 22 | 80 × 80 | 456 |
| 12 × 36 | 22 | 88 × 88 | 576 |
| 22 × 22 | 30 | 96 × 96 | 696 |
| 16 × 36 | 32 | 104 × 104 | 816 |
| 24 × 24 | 36 | 120 × 120 | 1050 |
| 26 × 26 | 44 | 132 × 132 | 1304 |
| 16 × 48 | 49 | 144 × 144 | 1558 |

The bar-code size can be set using the **MatrixSize** property. If this property is used to specify the specific size of the bar-code, then the barcode will be of that fixed size. If this property is set to **Automatic** (the default), then the minimal size that is necessary to encode the data will be selected from the list. There are 6 types of the bar-code. If it is required to get a square bar-code in the **Automatic** mode, then the **UseRectangularSymbols** property should be set to **false** (the default). If the property is set to true, then square and rectangular forms are used.

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There are several modes of data encoding. Which is used depends on the type of the encoded information. Each mode allows encoding their own set of characters and their own rate of compression.

-

| Encoding mode | Valid symbols | Bits per symbol |
|---|---|---|
| ASCII | ASCII character 0 to 127<br>ASCII character 128 to 255<br>ASCII numeric | 8<br>16<br>4 |
| C40 | Upper-case alphanumeric<br>Lower-case letters and punctuation | 5,33<br>10,66 |
| TEXT | Lower-case alphanumeric<br>Upper-case letters and punctuation | 5,33<br>10,66 |
| X12 | ANSI X12 | 5,33 |
| EDIFACT | ASCII character 32 to 94 | 6 |
| BASE 256 | ASCII character 0 to 255 | 8 |

The ASCII is the universal mode of data encoding (the default). It allows encoding any characters, but pairs of digits are compressed the best and the ASCII values (128-255) are compressed the worst.

**A "DataMatrix" bar-code.**

### 5.10.3.3 QR Code

A **QR Code** (QR is the abbreviation for Quick Response) is a two-dimensional code, readable by QR scanners, mobile phones with a camera, and smartphones. It was created by Toyota subsidiary Denso-Wave in 1994.
QR Code is capable of handling all types of data (see a table below):

| | | |
|---|---|---|
| **Numeric mode:** | 0123456789 | Maximum 7089 characters |
| **Alphanumeric mode:** | ABCDEFGHIJKLMNOPQRSTUVWXYZ<br>0123456789 $ % * + - . / : space | Maximum 4296 characters |
| **Binary mode (8 bits byte** | JIS 8-bit (Latin and Kana) | Maximum 2953 bytes |

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| | | |
|---|---|---|
| **data):** | | |
| **Kanji mode:** | Shift JIS (8140H-9FFCH and E040H-EBBFH) | Maximum 1817 characters |

The **QR Code** characteristics:
The bar-code size (not including quiet zone): Versions 1 to 40 (21*21 modules to 177*177 modules, increasing in steps of 4 modules per side)

Four levels of error correction allowing recovery of:

| Correction Level | Percentage of the recovered information |
|---|---|
| L | 7% |
| M | 15% |
| Q | 25% |
| H | 30% |

The higher the level of correction is, the bigger percentage of information of the corrupted bar-code can be recovered, but fewer information can be encoded in the bar-code of the same size.

**A "QR Code" barcode.**

## 5.11 Bands

Stimulsoft Reports builds its reports using bands (sometimes bands are called sections in other products). A band consist of two parts: the band header and the working area. On the band header the name of the band is shown, and other information and controls can be displayed. Every band is a container and may contain other components.

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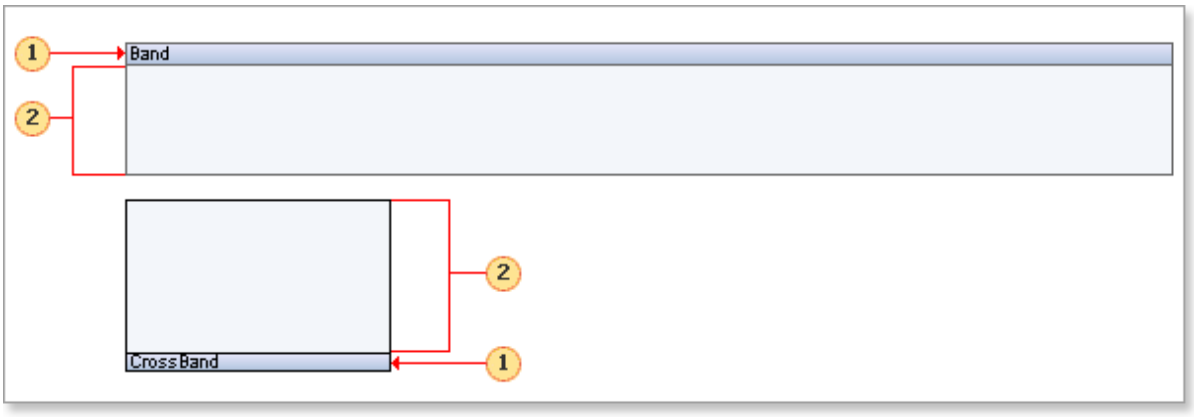


1 The band header;
2 The band working area.

Bands do not appear in the rendered report, only the calculated content of the bands is displayed. The properties of the band control only control its position within the rendered report.

Usually a report will consist of many bands with text and images on them. When a report is rendered, bands are copied as many times as necessary to complete the report. For example, the Header band is output once before data, then the Data band is output once for each record.

## 5.11.1 Band Types

There are many bands in Stimulsoft Reports. Each type of band has its own unique capabilities. All bands fall into one of two categories: standard bands or cross bands.

**Standard Bands**
Standard bands are rendered top-down. They are usually placed directly on a page. Also they can be placed on a panel.

**Cross Bands**
Cross-bands are rendered from left to right. Usually they are placed on standard bands. There is one special category of band, the Child Band, which whilst it is a standard band is typically used to extend a Data band.

### 5.11.1.1 Standard Bands

Standard bands are the basic elements of any report. The table below shows all the standard bands.

| Icon | Band Name | Description |
|---|---|---|
| | ReportTitle | This band is printed in the beginning of a report |

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| | | |
|---|---|---|
| | ReportSummary | This band is printed in the end of a report |
| | PageHeader | This band is printed on the top of each page |
| | PageFooter | This band is printed on the bottom of each page |
| | GroupHeader | This band is printed in the beginning of a group |
| | GroupFooter | This band is printed in the end of a group |
| | Header | This band is printed before data |
| | Footer | This band is printed after data |
| | ColumnHeader | This band is printed before a column is output |
| | ColumnFooter | This band is printed after a column is output |
| | Data | This band is printed as many times as there are rows in the data source |
| | Hierarchical Data | This band is printed as many times as there are rows in the data source. Data items are output as a tree |
| | Child | This band is printed only once, after the band beneath which it is placed |
| | Empty Data | Fills the free space at the bottom of a page |
| | Overlay | This band is printed on the background of a page. It does not effect on other bands. |

To make the structure of reports easier to understand and to make a report template look clearer each type of band has its own color:

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### 5.11.1.2 Cross-bands

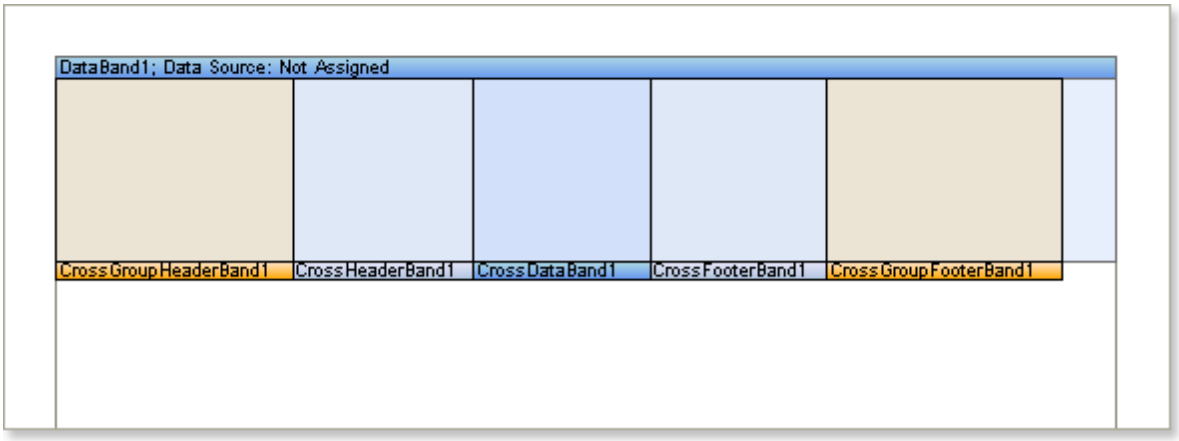
Cross bands must be placed on a simple band, so they cannot be placed directly on a page or a container. They are used to permit the rendering if complicated cross-reports.

**Important:** Cross-bands can be placed only on simple bands. It is impossible to put them on a page or container.

The list below shows types of cross-bands:

| Icon | Name | Description |
|---|---|---|
| | CrossGroupHeader | This band is printed in the beginning of a group |
| | CrossGroupFooter | This band is printed in the end of a group |
| | CrossHeader | This band is printed before data |
| | CrossFooter | This band is printed after data |
| | CrossData | This band is printed as many times as there are rows in the data source |

Unlike simple bands, the cross-bands header is displayed at the bottom of a band.




## 5.11.2 Output Order of Bands

When rendering a report there is a definite order in which the bands are generated because every band has specific functionality. For example, for a table output you should use three bands: Header, Data, Footer. The Header band is used to place column headers, the Data values are placed on the

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Data band, and the totals are placed on the Footer band.

The following table describes the bands and their output order:

| Order | Name | Description |
|---|---|---|
| 1 | PageHeaderBand | On each page. Output on the first page is optional. |
| 2 | ReportTitleBand | Once at the beginning of a report. The ReportTitleBand can be output before the PageHeaderBand if the TitleBeforeHeader property of the page on which both bands are placed is set to true. |
| 3 | HeaderBand, ColumnHeader | Once before data output (for the ColumnHeader - once for every column). Output on each new page is optional. |
| 4 | GroupHeaderBand | At the beginning of each group. Output on each new page is optional. |
| 5 | DataBand | Once for every row of data. |
| 6 | GroupFooterBand | At the end of each group. |
| 7 | FooterBand, ColumnFooter | After all data has been output (for the ColumnFooter - once for every column). Output on each new page is optional. |
| 8 | ReportSummaryBand | Once at the end of a report. |
| 9 | PageFooterBand | On every page. Output on first page is optional. |

The Child band is not specified in the preceding table. This band is always printed immediately after the band it follows when placed on a page.

**Note:** Components placed directly on the page (i.e. not on any band) are printed first, followed by the bands.

In a report it is possible to use as many bands of one type as you wish. For example, you can use two Header bands.

If there is more than one band of one type then they will be output in the order of their position on a page. In other words the band furthest up the page will be printed first followed by the other bands of the same type. This is also true with cross-bands except that the band on the left will be printed first.

The order in which bands of the same type are output can be changed by simply moving the bands on the page. You can drag one of the bands with the mouse or you can use the Move Forward and Move Backward commands from the context (right click) menu or you can use the  buttons on the Layout toolbar to change the band order.

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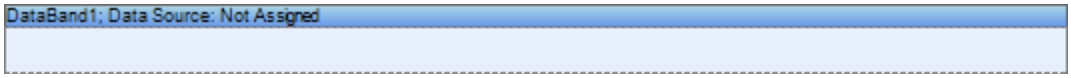
# 5.12 Creating Lists

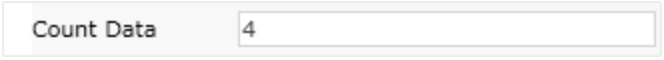
Lists in a report can be output using three bands: **Header** , **Footer** , and **Data** . Data are output using these bands. The basic band is the **Data** band. A data source is specified to each **Data** band. The data source is a table. Each data source has data fields. It is possible to output a table by placing text components with references to these fields. One data source can specify previously unknown number of rows with data. The **Data** band is output as many times as there are rows in the specified data source. For example, if there are 100 rows in the data source, then the **Data** bad will be output 100 times. If it is not enough space on one page, the second page will be generated and printing will be continued. Using the **Header** band, headers will be added to the table that is output using the **Data** band. Correspondingly, the **Footer** band is used to output different totals by the output table.

## 5.12.1 Data Band

The basic band is the **Data** band. A data source is specified to each **Data** band. The data source is a table. Each data source has data fields. It is possible to output a table by placing text components with references to these fields. One data source can specify previously unknown number of rows with data. The **Data** band is output as many times as there are rows in the specified data source. For example, if there are 100 rows in the data source, then the **Data** bad will be output 100 times. If it is not enough space on one page, the second page will be generated and printing will be continued:




**Virtual Data Band**
Sometimes it is necessary to print a **Data** band several times without specifying a data source. The **CountData** property is used for this purpose.




It is possible to specify number of elements in the **Data** band editor. On the picture below the **Data** editor is shown.

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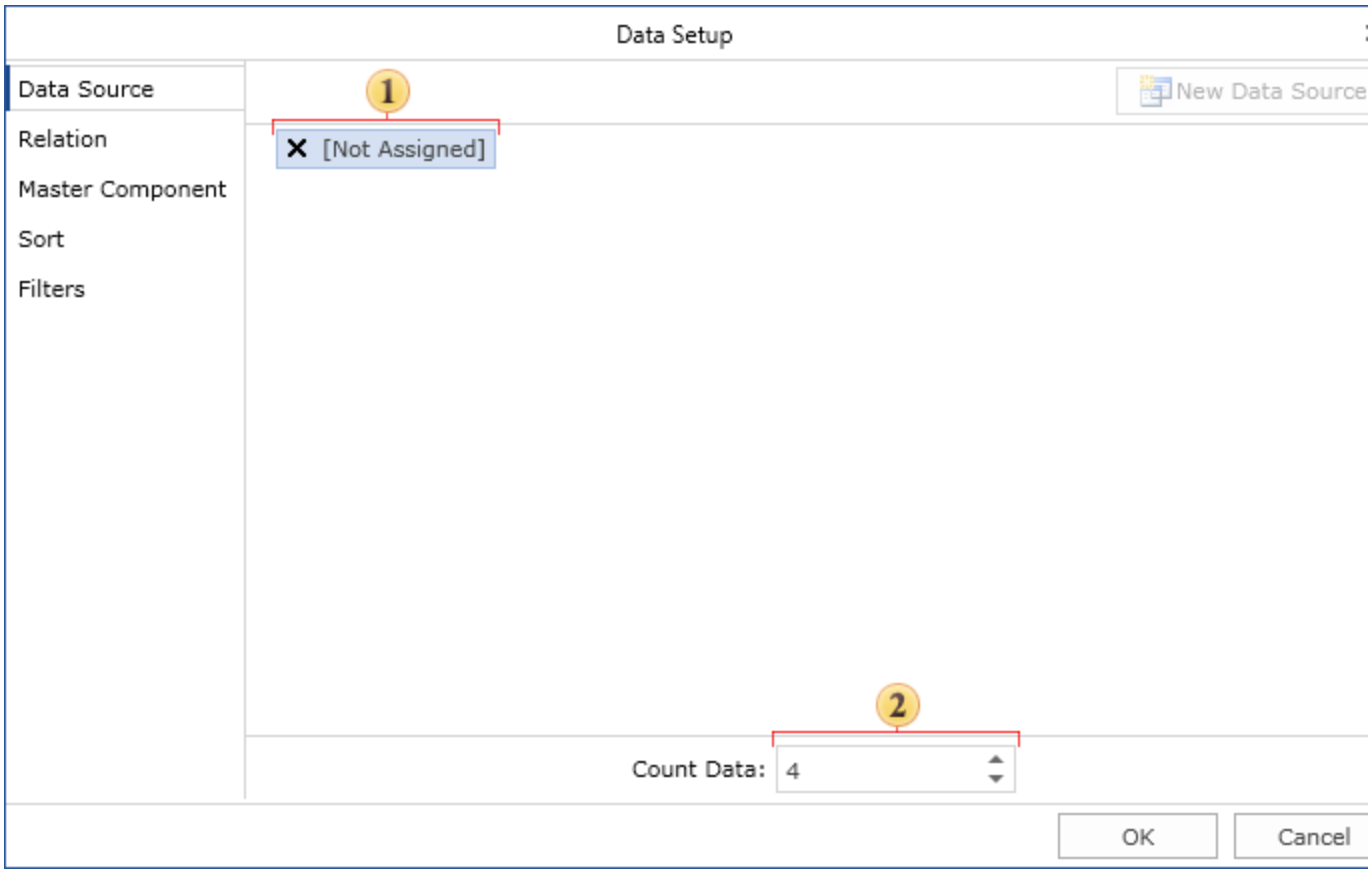


1 The field in what number of elements for the **Data** band can be specified.
2 A data source is not specified.

By default the **CountData** property is 0. But if to set it to 4, then the **Data** band will be printed 4 times. This can be used to print empty columns. It is important to remember that in this case data source is not specified.

## 5.12.2 Data Source of Data Band

It is necessary to specify what data source will be used when you output lists in the **Data** band. It is important because report generator should know how many times the **Data** band must be printed. Therefore, the reference to the **Data** band is specified. This can be done with several ways. First, it is possible to use the **Data** band editor. To call the editor it is enough double-click on the **Data** band. Also it is possible to call the editor from the context menu. See below an example of this menu.

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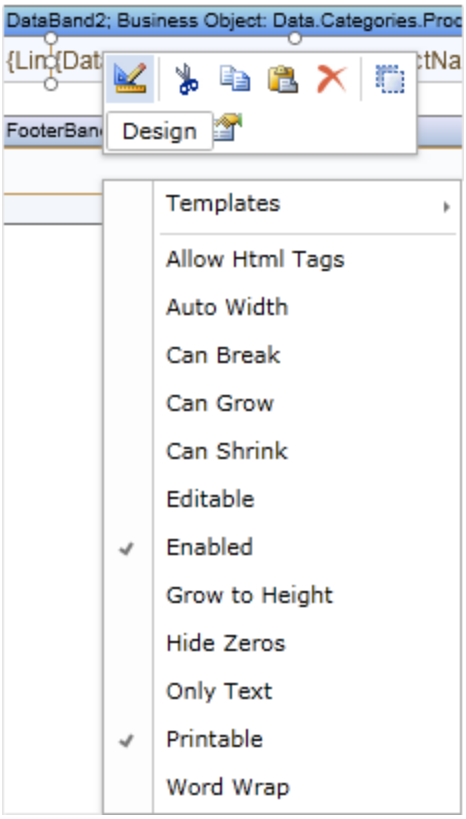


Also the editor can be called using the **DataSource** property of the **Data** band.

**Data** band editor allows quickly selecting data source. Data source is selected on the first bookmark of the **Data** band editor. All data sources are grouped in categories. Each category is one data connection with data in the Dictionary of Data. The picture below shows data in the **Data** band editor.

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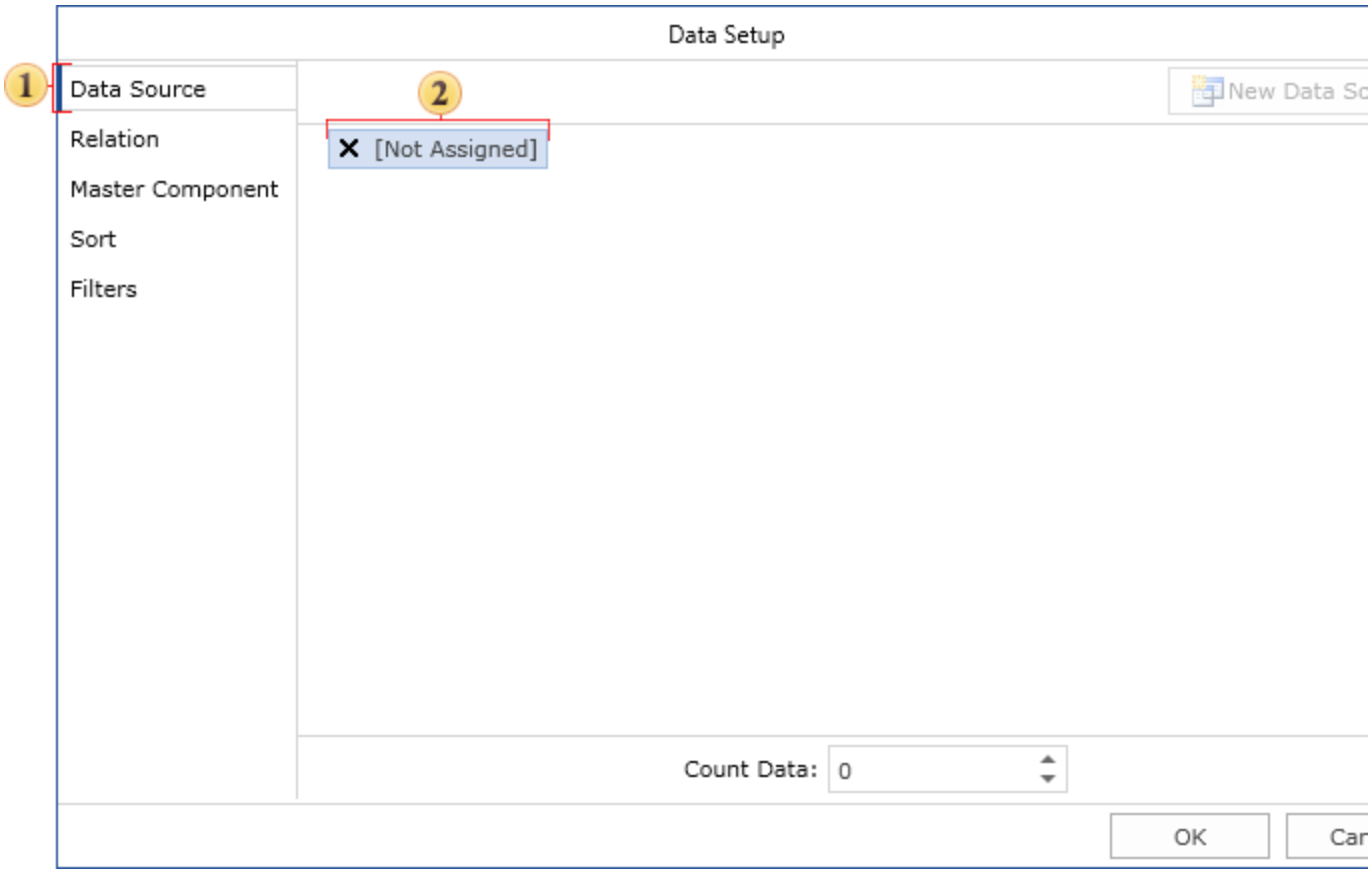


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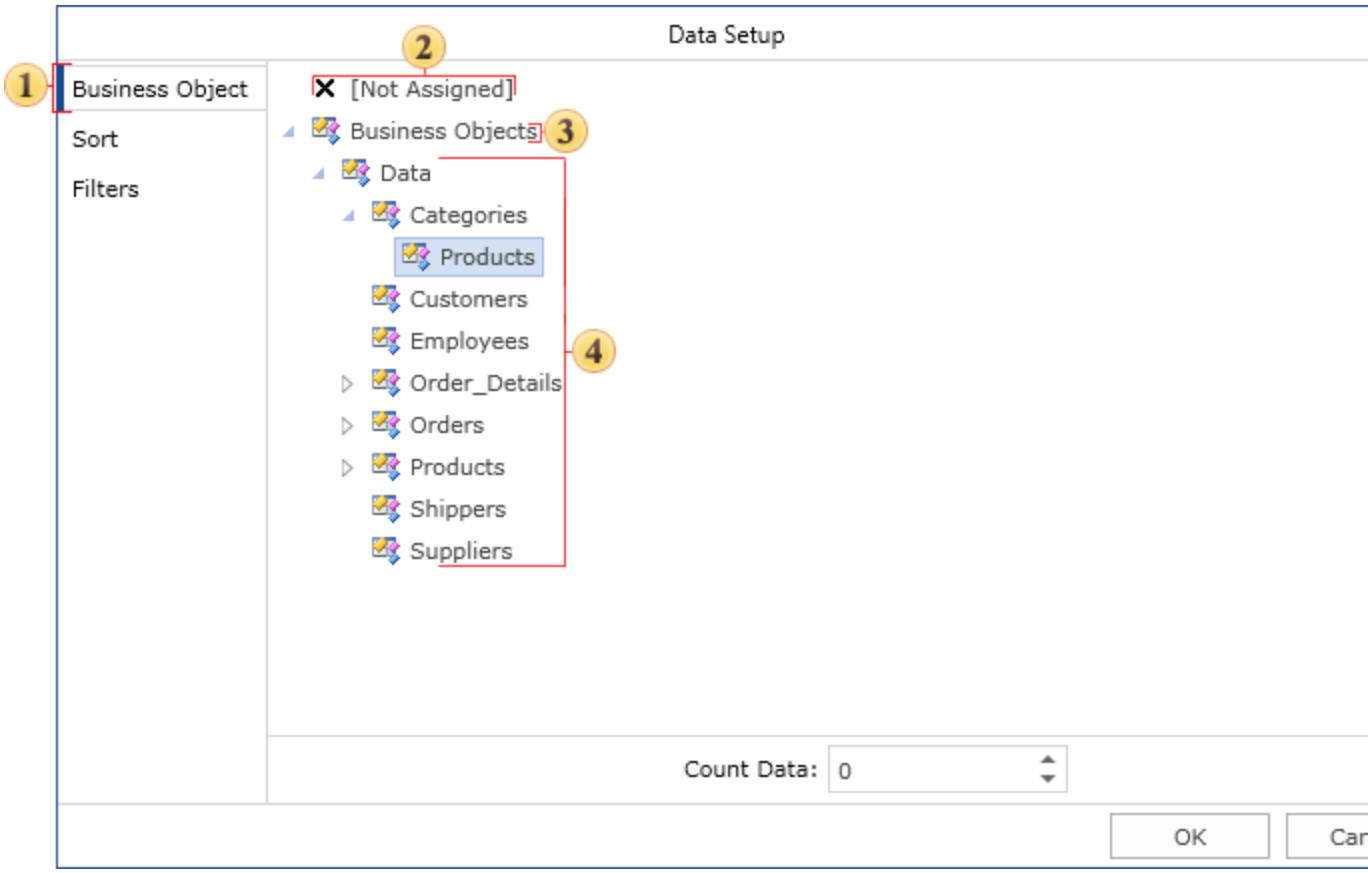


1. Select data source bookmark of the **Data** band.
2. Select this node if there is no need to specify any data source.
3. The "Demo" category of data.
4. The "Demo" category data source .

Second, it is possible to use quick button on the **Data** band and select data source from menu. Basic elements of menu are represented on the picture below.

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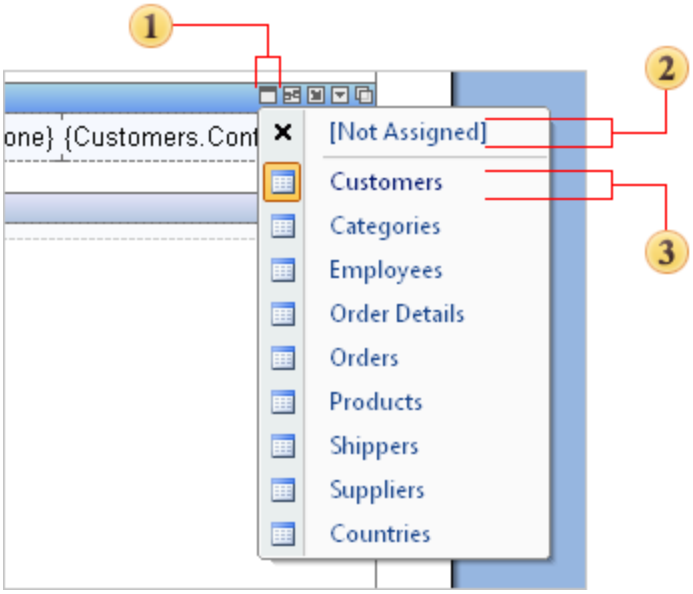


1. Quick button the select data source.
2. This menu item is used to reset data source selection.
3. The **Customers** data source is selected.

### 5.12.3 List Output

Render a report that prints a list. Put one **Data** band on a page. Using the **DataSource** property assign a data source to the band. Put **Text** components on the band. Make a reference to data fields in each component. For example:

```
{Customers.CompanyName}
```

The report template will have the following view.

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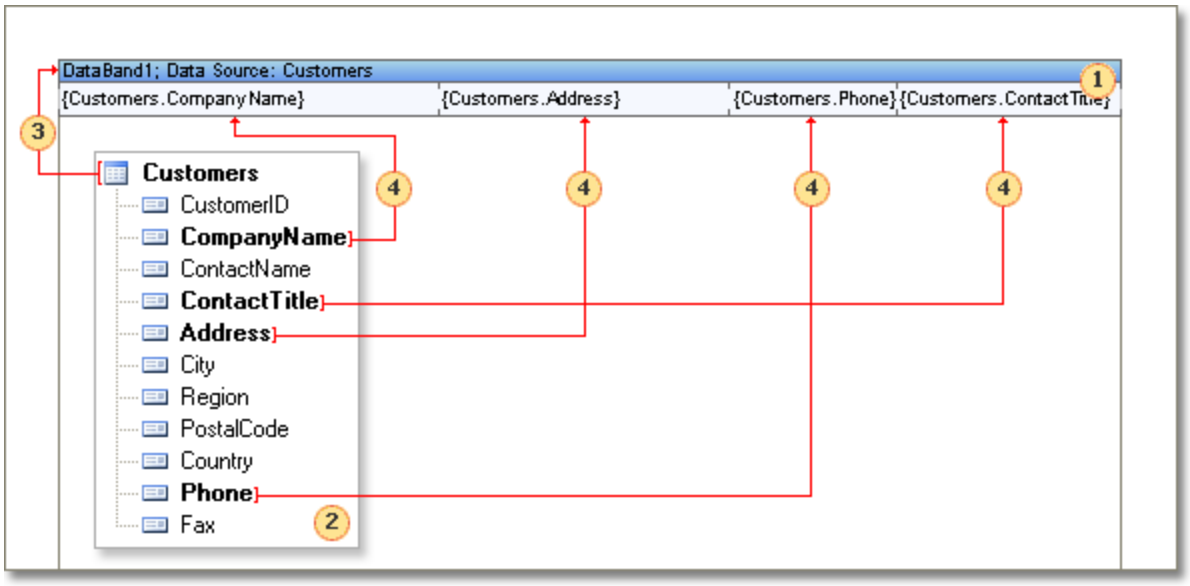


1 **Data** band that outputs a table.
2 The data source that is used to get data rows.
3 Reference to the data source. It is necessary to specify data source to the **Data** band.
4 Reference to the data source. **Text** components are placed on the **Data** band. References to data sources fields are created. When rendering, all references will be changed on data.

After report rendering all references to data fields will be changed with data from specified fields. Data will be taken from the data source, that was specified for this band. Number of copies of the **Data** band in the rendered report will be equal to the number of rows in the data source. As a result, all fields were output as a list. The picture below shows a rendered report.

| | | | |
|---|---|---|---|
| Alfreds Futterkiste | Obere Str. 57 | 030-0074321 | Sales Representative |
| Ana Trujillo Emparedados y helados | Avda. de la Constitución 2222 | (5) 555-4729 | Owner |
| Antonio Moreno Taquería | Mataderos 2312 | (5) 555-3932 | Owner |
| Around the Horn | 120 Hanover Sq. | (171) 555-7788 | Sales Representative |
| Berglunds snabbköp | Berguvsvägen 8 | 0921-12 34 65 | Order Administrator |
| Blauer See Delikatessen | Forsterstr. 57 | 0621-08460 | Sales Representative |
| Blondesddsl père et fils | 24, place Kléber | 88.60.15.31 | Marketing Manager |
| Bólido Comidas preparadas | C/ Araquil, 67 | (91) 555 22 82 | Owner |
| Bon app' | 12, rue des Bouchers | 91.24.45.40 | Owner |
| Bottom-Dollar Markets | 23 Tsawassen Blvd. | (604) 555-4729 | Accounting Manager |
| B's Beverages | Fauntleroy Circus | (171) 555-1212 | Sales Representative |
| Cactus Comidas para llevar | Cerrito 333 | (1) 135-5555 | Sales Agent |
| Centro comercial Moctezuma | Sierras de Granada 9993 | (5) 555-3392 | Marketing Manager |
| Chop-suey Chinese | Hauptstr. 29 | 0452-076545 | Owner |
| Comércio Mineiro | Av. dos Lusíadas, 23 | (11) 555-7647 | Sales Associate |
| Consolidated Holdings | Berkeley Gardens 12 Brewery | (171) 555-2282 | Sales Representative |
| Drachenblut Delikatessen | Walserweg 21 | 0241-039123 | Order Administrator |
| Du monde entier | 67, rue des Cinquante Otages | 40.67.88.88 | Owner |

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If all lists cannot be placed on one page, then the report generator will add additional pages.

### 5.12.4 List with Header

Usually, a name of a column is output over each column. To output data name or other information before data the special **Header** band is used. It is placed on a page before the **Data** band. There should not be any headers between the **Data** band and the **Header** band. On the picture below a sample of a report with one **Header** band and one **Data** band is shown.

Create a new report. Put a data band on a page. Add the **Header** band to a report. Put text components on a band. Specify data name, which are output on the **Data** band, in these text components. Increase the font size, make it bold. Change the text components background on the **Header** band. Render a report. The picture below shows the result of report rendering.

| Company Name | Address | Phone | Contact Title |
|---|---|---|---|
| Alfreds Futterkiste | Obere Str. 57 | 030-0074321 | Sales Representative |
| Ana Trujillo Emparedados y helados | Avda. de la Constitución 2222 | (5) 555-4729 | Owner |
| Antonio Moreno Taquería | Mataderos 2312 | (5) 555-3932 | Owner |
| Around the Horn | 120 Hanover Sq. | (171) 555-7788 | Sales Representative |
| Berglunds snabbköp | Berguvsvägen 8 | 0921-12 34 65 | Order Administrator |
| Blauer See Delikatessen | Forsterstr. 57 | 0621-08460 | Sales Representative |
| Blondesddsl père et fils | 24, place Kléber | 88.60.15.31 | Marketing Manager |
| Bólido Comidas preparadas | C/ Araquil, 67 | (91) 555 22 82 | Owner |
| Bon app' | 12, rue des Bouchers | 91.24.45.40 | Owner |
| Bottom-Dollar Markets | 23 Tsawassen Blvd. | (604) 555-4729 | Accounting Manager |
| B's Beverages | Fauntleroy Circus | (171) 555-1212 | Sales Representative |
| Cactus Comidas para llevar | Cerrito 333 | (1) 135-5555 | Sales Agent |
| Centro comercial Moctezuma | Sierras de Granada 9993 | (5) 555-3392 | Marketing Manager |
| Chop-suey Chinese | Hauptstr. 29 | 0452-076545 | Owner |
| Comércio Mineiro | Av. dos Lusíadas, 23 | (11) 555-7647 | Sales Associate |
| Consolidated Holdings | Berkeley Gardens 12 Brewery | (171) 555-2282 | Sales Representative |
| Drachenblut Delikatessen | Walserweg 21 | 0241-039123 | Order Administrator |
| Du monde entier | 67, rue des Cinquante Otages | 40.67.88.88 | Owner |

When report rendering for one **Data** band, it is possible to create more than one **Header** band. For example, one **Header** band can be output only in the beginning of data. And the second one can be

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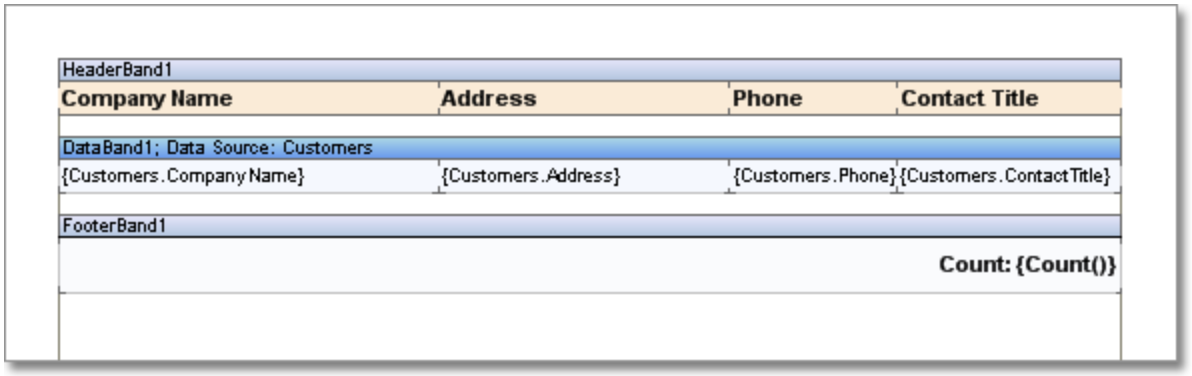
output in the beginning of data and on other pages of a report. **Header** bands are output in the same order as they are placed on a page.

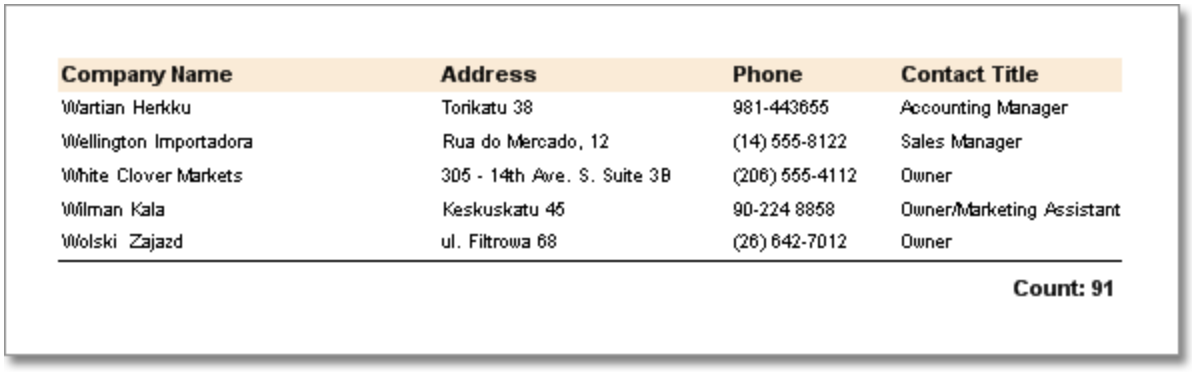
**Notice:** For one Data band unlimited number of Header bands can be created.

### 5.12.5 List with Footer

Besides **Data** bands and **Headers** bands, **Footer** bands can be used. These bands are used to output total of data. The **Footer** band is placed after data are output. Different information is output in the band. For example, totals of a list, data, additional information. On the picture below a report template with the **Footer** band is shown.




As a result of report rendering with the **Footer** band, the report generator will output total after all data will be output. For example:



| Company Name | Address | Phone | Contact Title |
|---|---|---|---|
| Wartian Herkku | Torikatu 38 | 981-443655 | Accounting Manager |
| Wellington Importadora | Rua do Mercado, 12 | (14) 555-8122 | Sales Manager |
| White Clover Markets | 305 - 14th Ave. S. Suite 3B | (206) 555-4112 | Owner |
| Wilman Kala | Keskuskatu 45 | 90-224 8858 | Owner/Marketing Assistant |
| Wolski Zajazd | ul. Filtrowa 68 | (26) 642-7012 | Owner |

Count: 91

The **Data** band may have unlimited number of bands. Bands of totals will be output in the same order as they are placed on a page.

**Notice:** For one Data band unlimited number of Footer bands can be created.

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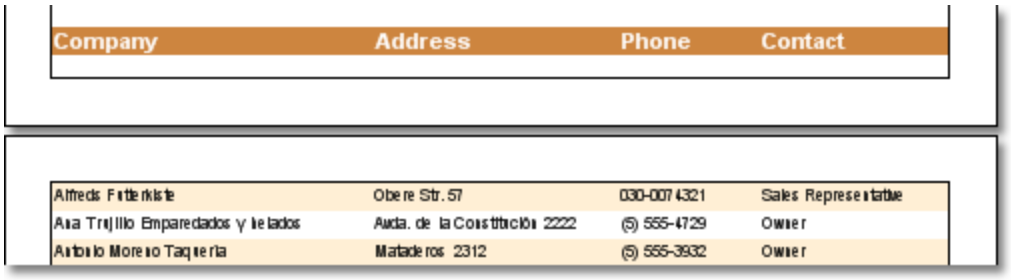
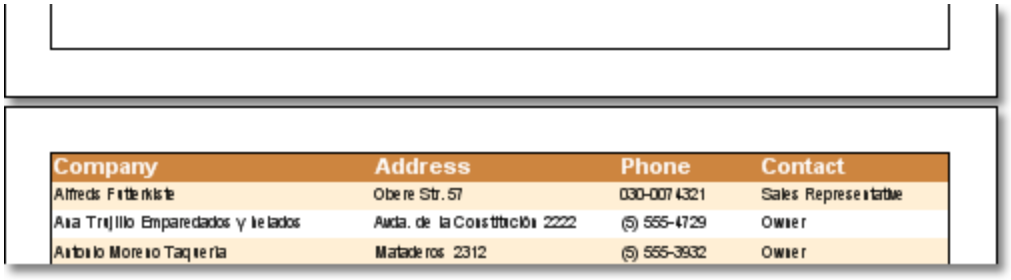
## 5.12.6 KeepHeaderTogether Property

Sometimes, when printing lists, a header will be printed on one page, and the first row of data on another. To escape this visual gap of data the **KeepHeaderTogether** property of the **Header** band can be used. If the property is **true**, then headers will be printed together with data. In other words as minimum one row with data will be output. If there is no enough free space for a header with data row, then they will be carried over on the next page. See a sample of a rendered report with the **KeepHeaderTogether** property set to **false**.




As the same report with keeping header together with the first data row.




By default, the **KeepHeaderTogether** property is set to **true.** So headers will be kept together with the first row of data.

## 5.12.7 KeepFooterTogether Property

The **KeepFooterTogether** property is used to print a list so that to output data row together with totals of data. If the property is **true,** then totals will be printed with the last row of data. If total cannot be placed after the last page printing, then it is output on the current page. If there is no enough free space to output totals, then it is carried over on the next page. On picture below a sample of a report with the **KeepFooterTogether** property set to **false** is shown.

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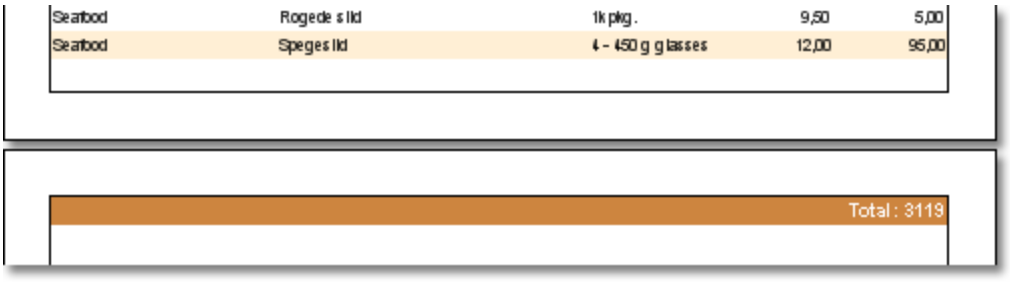
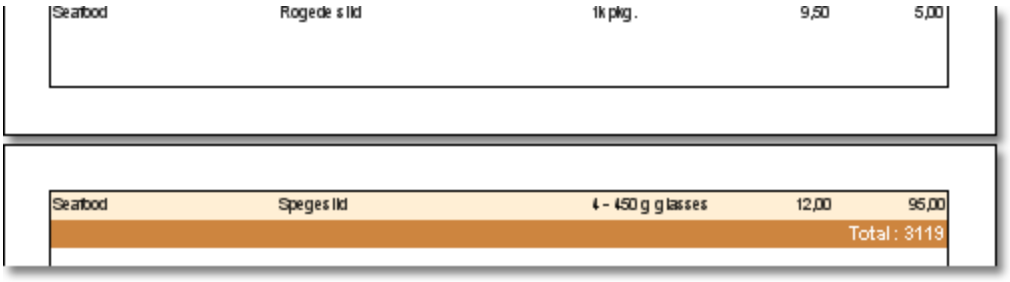



And the same report with keeping footer together with the last row of data.




By default, the **KeepFooterTogether** property is set to **true**, so totals of data will be kept together with last row of data.

## 5.12.8 Enumeration in Lists

Sometimes it is necessary to number lists. It is more convenient to work with an enumerated list. On the picture below an enumerated list is shown.

| | | |
|---|---|---|
| 1. Chai | 10 boxes x 20 bags | 39,00 |
| 2. Chang | 24 - 12 oz bottles | 17,00 |
| 3. Chartreuse verte | 750 cc per bottle | 69,00 |
| 4. Côte de Blaye | 12 - 75 cl bottles | 17,00 |
| 5. Guaraná Fantástica | 12 - 355 ml cans | 20,00 |
| 6. Ipoh Coffee | 16 - 500 g tins | 17,00 |
| 7. Lakkalikööri | 500 ml | 57,00 |
| 8. Laughing Lumberjack Lager | 24 - 12 oz bottles | 52,00 |
| 9. Outback Lager | 24 - 355 ml bottles | 15,00 |
| 10. Rhönbräu Klosterbier | 24 - 0.5 l bottles | 125,00 |
| 11. Sasquatch Ale | 24 - 12 oz bottles | 111,00 |
| 12. Steeleye Stout | 24 - 12 oz bottles | 20,00 |

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To add a number of a row into an expression it is possible to use the **Line** system variable. For example, the following expression can be used to get the result as is shown on the picture above:

```
{Line}.{Products.ProductName}
```

The **Line** system variable returns the number of the current row. Numeration starts with 1. In other words the system variable returns 1 for the first row, 2 for the second one and etc. This system variable has the **Int64** type. The **Line** system variable may also be used in arithmetic expressions. If you need to start numeration from 0, it is necessary to use the following expression:

```
{Line - 1}.{Products.ProductName}
```

In addition to the **Line**, **LineABC** and **LineRoman** system variables can also be used for the list enumeration. The **LineABC** system variable returns the alphabetical index instead of a number of a row. The **LineRoman** system variable returns Roman numerals of a number of a row. For example, a report where the **LineABC** system variable is used is shown on the picture below:

| | | |
|---|---|---|
| A.Chai | 10 boxes x 20 bags | 39,00 |
| B.Chang | 24 - 12 oz bottles | 17,00 |
| C.Chartreuse verte | 750 cc per bottle | 69,00 |
| D.Côte de Blaye | 12 - 75 cl bottles | 17,00 |
| E.Guaraná Fantástica | 12 - 355 ml cans | 20,00 |
| F.Ipoh Coffee | 16 - 500 g tins | 17,00 |
| G.Lakkalikööri | 500 ml | 57,00 |
| H.Laughing Lumberjack Lager | 24 - 12 oz bottles | 52,00 |
| I.Outback Lager | 24 - 355 ml bottles | 15,00 |
| J.Rhönbräu Klosterbier | 24 - 0.5 l bottles | 125,00 |
| K.Sasquatch Ale | 24 - 12 oz bottles | 111,00 |
| L.Steeleye Stout | 24 - 12 oz bottles | 20,00 |

A report where the **LineRoman** system variable is used is shown on the picture below:

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| | | |
|---|---|---|
| I.Chai | 10 boxes x 20 bags | 39,00 |
| II.Chang | 24 - 12 oz bottles | 17,00 |
| III.Chartreuse verte | 750 cc per bottle | 69,00 |
| IV.Côte de Blaye | 12 - 75 cl bottles | 17,00 |
| V.Guaraná Fantástica | 12 - 355 ml cans | 20,00 |
| VI.Ipoh Coffee | 16 - 500 g tins | 17,00 |
| VII.Lakkalikööri | 500 ml | 57,00 |
| VIII.Laughing Lumberjack Lager | 24 - 12 oz bottles | 52,00 |
| IX.Outback Lager | 24 - 355 ml bottles | 15,00 |
| X.Rhönbräu Klosterbier | 24 - 0.5 l bottles | 125,00 |
| XI.Sasquatch Ale | 24 - 12 oz bottles | 111,00 |
| XII.Steeleye Stout | 24 - 12 oz bottles | 20,00 |

**LineABC** and **LineRoman** system variables, unlike the **Line** system variable, return numbers as strings. For example, to enumerate a list with letters in the lower case, it is possible to use the following expression:

```
{Line.ToLower()}.{Products.ProductName}
```

## 5.12.9 Selecting Rows One After Another

To make a report look better and for much convenient work with rows it is recommended to alternate rows filled with different colors. This will make your report look professional. There are two ways in the report generator to make such filling: 1. using highlight conditions; 2. using special properties of the **Data** band styles.
The first way - using the **Data** band highlight condition. Open a report that has a list. An example of such a report is shown on the picture below.

All rows have the same background color. Add highlight condition to the Data band. The **Conditions**

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property of the band is used for this. Add a new condition in the editor, change background color on another color to fill odd rows, change text color (it is red by default) and set the highlight condition. The **Line** system variable is used to specify whether this row is odd or even. For example:

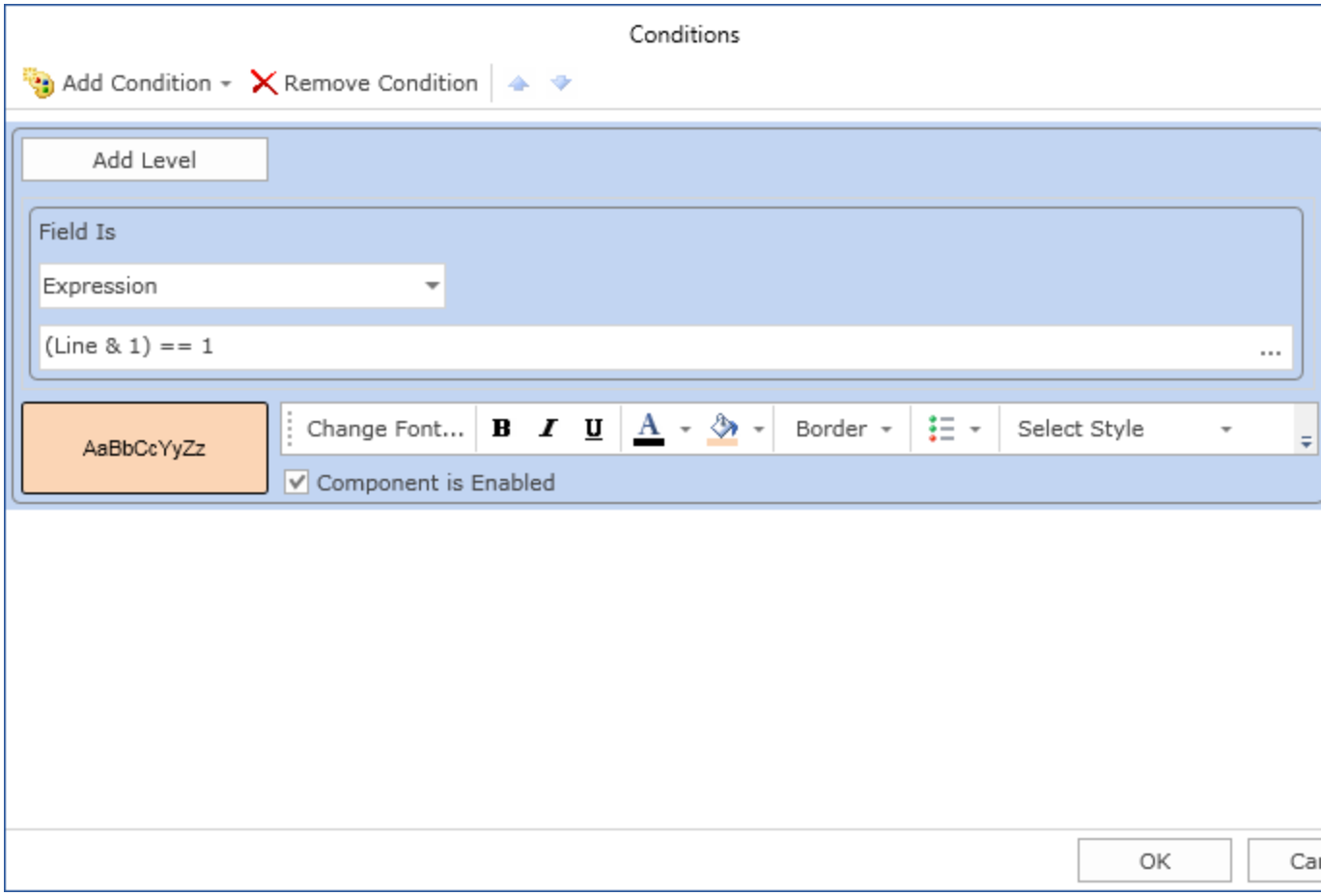
C#:

```
(Line & 1) == 1
```

VB.Net

```
(Line And 1) = 1
```

In other words for odd rows this condition is true. On the picture below the Conditions editor is shown.




After adding a condition to the data band a report will look as it shown on the picture below.

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The second way - using properties of styles. The **Data** band has two special properties - **OddStyle** and **EvenStyle**. To add highlight condition to rows it is enough to specify a style in one of these properties. For example, the collection of styles has **OddStyle**. Select this style in the **OddStyle** property.

The report looks the same as the one where the first way was used.

## 5.12.10 Events and Data Band

Except standard event for all components the **Data** band has three special events: **BeginRenderEvent**, **EndRenderEvent** and **RenderingEvent**. The **Data** band must be created for each data row of the specified data source. For example, if there are 10 rows in the data source, then the **Data** band will be created 10 times. The **BeginRenderEvent** event is called before the data is rendered. In other words when data rows are not output. The event can be used for initialization some data ans variables, calling some actions. The **EndRenderEvent** event is called after the **Data** band is rendered, when all data rows will be output. In this event data processing, totals calculation processing is done. **RenderingEvent** event is called when rendering one data row. The event is called before the **Data** band is printed. If these are 10 data rows, then the **RenderingEvent** event will be output 10 times.

Calculate number of elements in the data source. Write the following code in the **BeginRenderEvent**:

```
myvariable = 0;
```

Also it is necessary to create the **myvariable** variable in the data dictionary. Write the following code in the **RenderingEvent**:

```
myvariable = myvariable + 1;
```

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And the **EndRenderEvent** is not used in this case. As a result of calculation the **myvariable** will store the value that equal to number of elements in the data source. To output this value in the **Text** component the following expression will be used:

```
{myvariable}
```

Also it is necessary to set the **ProcessAtEnd** property of the **Text** component to **true**. It is necessary to output calculated value in the **myvariable.**

## 5.12.11 Data Sorting

Frequently data, which are used for the report rendering, are sorted in order that does not to meet your requirements. In this case, it is possible to sort data using by abilities of Stimulsoft Reports. Sorting can be set for each **Data** band separately. To set sorting it is necessary to use the **Sort** property of the **Data** band. Using this property it is possible to call the editor of the **Data** band.

Also it is possible to call the editor by double-click on the band. The **Sort** bookmark is responsible for sorting in the band editor. The picture below shows structure of the bookmark of sorting.

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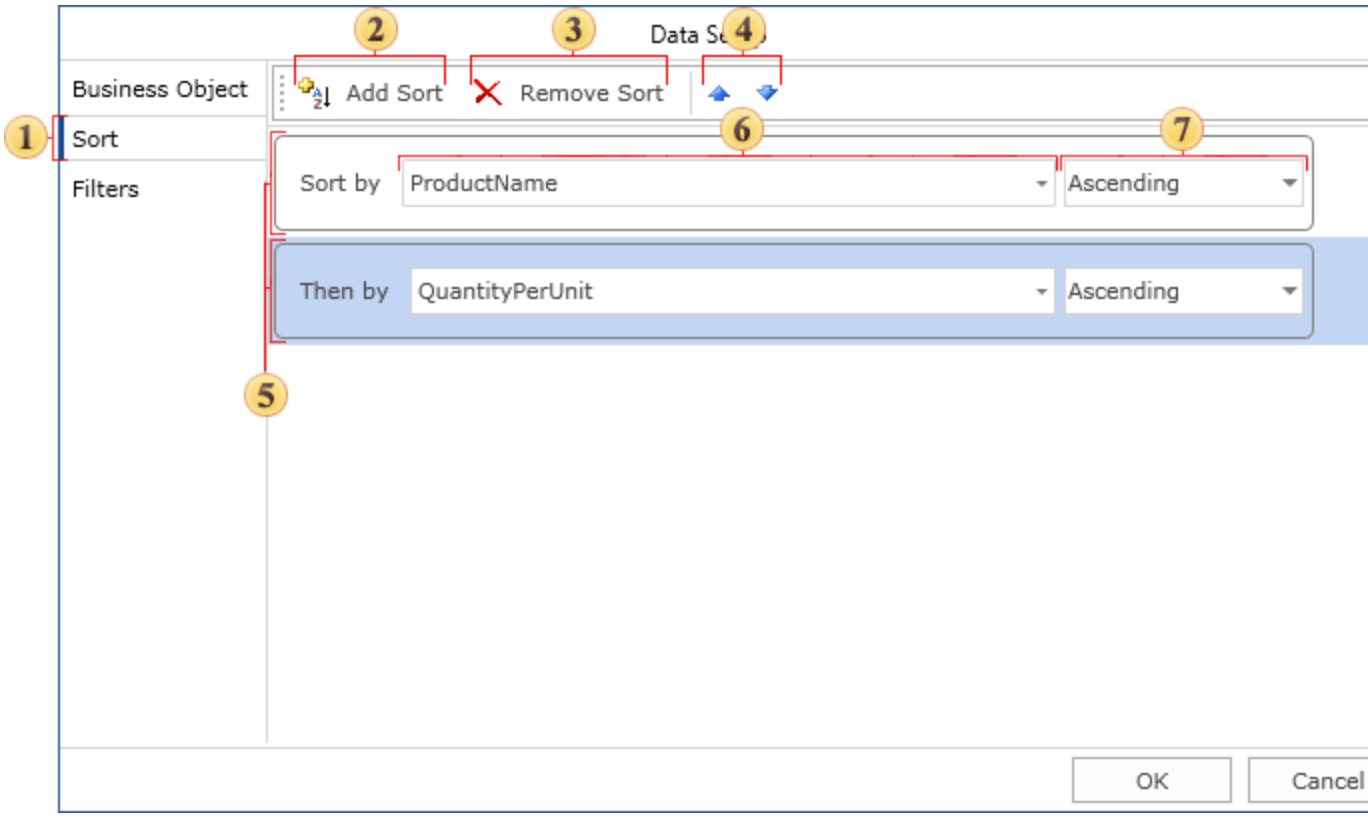


1. The Sort bookmark;
2. The button to add a new level of sorting;
3. The button to remove the selected level of sorting;
4. Move the selected level of sorting upwards;
5. Move the selected level of sorting downwards;
6. Level of sorting;
7. The column or expression which are used for sorting;
8. The button to add or edit expressions of the sorting level;
9. The button the select a column for sorting;
10. Direction of sorting.

Each sorting consist of several levels. For example, the first list can be sorted by one column, then by the second column, then by the third column. On the picture above bookmark sorting, sorting levels are marked with figure 6. Number of levels of sorting is unlimited. Each level of sorting has the sort order. It is possible to sort in ascending order and in descending order. By default, sorting is set in ascending order. In addition to the sort order in each level of sorting the column (figure 9 on the picture above) is set or expression (figure 8 on the picture above) is set, which is used to obtain the values by which sorting will be done.

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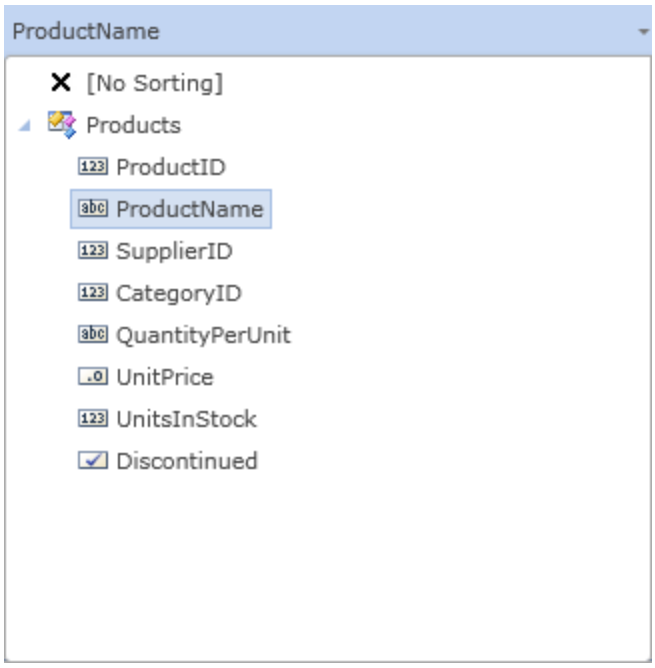
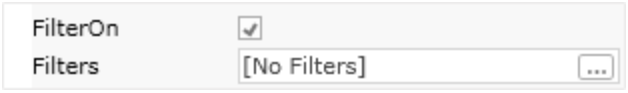



## 5.12.12 Data Filtering

When rendering a report, sometimes it is necessary to print rows of the data source which correspond to the definite condition. To select the necessary rows the data filtering is used. Data filtering is set using the **Filters** property of the **Data** band. In addition to the **Filters** property the **FilterOn** property can also be used. This property controls filter activity.




How does the filter work? In each filter the condition is set. If the condition is set to **true**, this means that the result of its calculation is **true**, then this data row will be output. If the result of calculation is set to **false**, then this row will be ignored. Each band may contain more than one filter. For example it is necessary to check one of columns of the data source on the equality to the string constant and simultaneously the value of this column should start with the definite character. The filtering is setup in the window of the **Data** band setup (the Filters bookmark). On the picture below such a window is shown.

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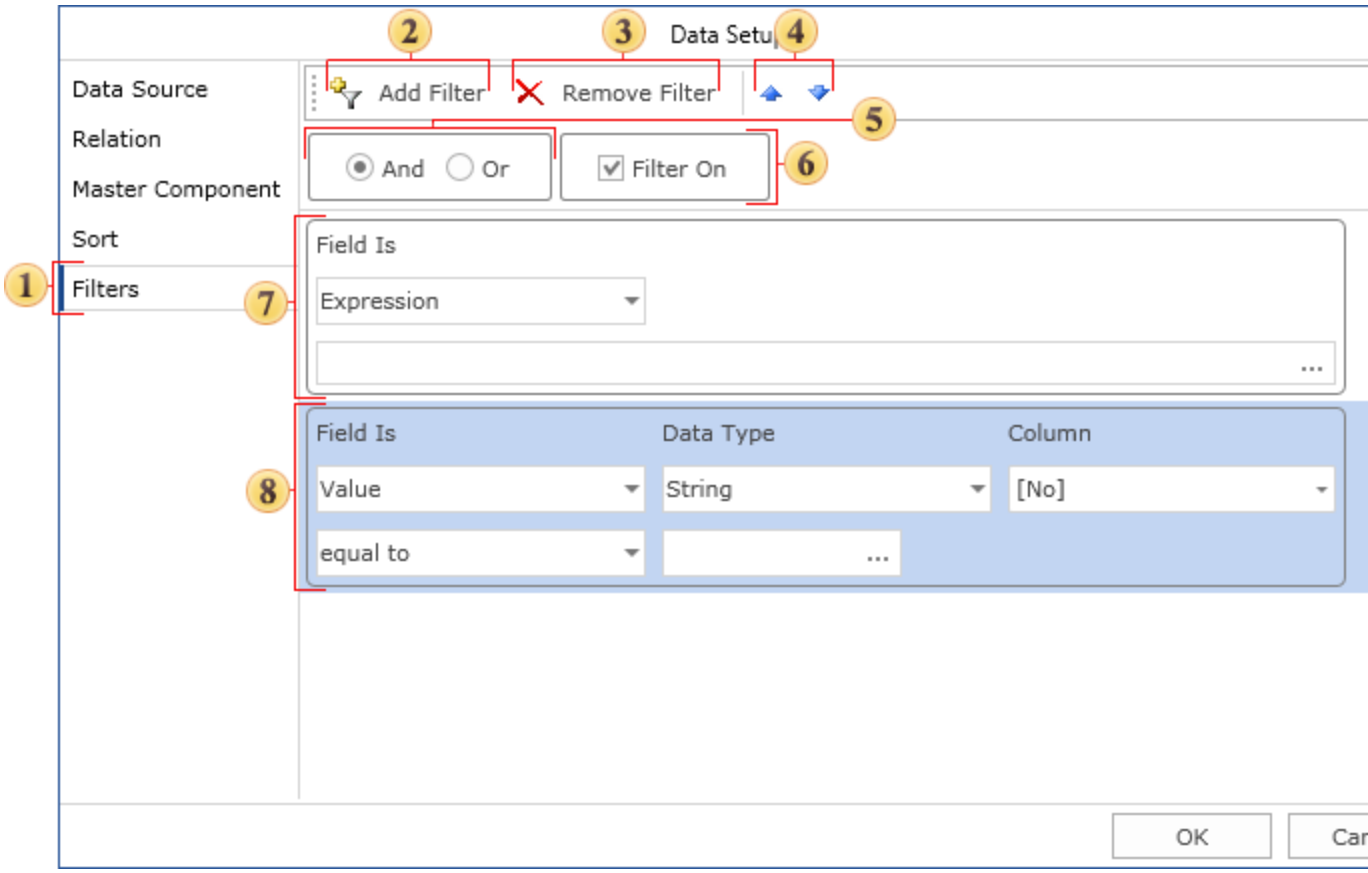


1 The **Filters** bookmark;
2 Filter panels. Each **Data** band may contain one or more filters;
3 The button to select a new filter;
4 The button to delete the selected filter;
5 The type of logical operation, according to what filters will be formed. This field is available if the **Data** band contains more than one filter. There are two options: a logical **And** and logical **Or**. If you select the logical **And**, then data row will be output, if all filters are set to **true**. If you select the logical **Or**, then the data row will be output, if at least one of the filters is set to **true**;
6 The **Filter On** flag is used to enable/disable filters of the data band.

Each filter is a condition for data row processing. There are two ways set a condition:

- **Value.** The condition is set using the wizard;
- **Expression.** The condition is set as an expression.

On the picture below, the figure 1 is the field in what the way of calculating condition is indicated.

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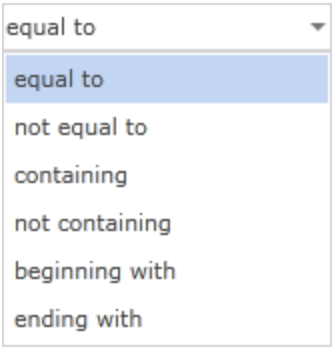
### How to set a condition using the wizard

On the picture below the panel of setting a condition using the wizard is shown.

1 The way of selecting a condition;
2 This field specifies the type of data with what the condition will work. There are five types of data: **String**, **Numeric**, **DateTime**, **Boolean**, **Expression**. Data type has affect on how the reporting tool processes a condition. For example, if the data type is a string, then the method of work with strings is used. In addition, depending on the data type the list of available operations of conditions is changed. For example, only for the **String** data type is **Containing** operation is available;
3 The column of the data source is specified in the field. The value from this column will be used as the first value of a condition;
4 The type of operation, using what the calculation of the value of a condition is done. All available types of operation are grouped in the table and shown on the picture below;




5 The second value of a condition of a filter. It is required to specify two values for some operations. For example, for the **between** operation it is required to specify two values.

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The table below shows operations and their description for each data type.

| Name of operation | Types of data | | | | | Description |
|---|---|---|---|---|---|---|
| | String | Numeric | Date | Logic | Expression | |
| equal to | ✓ | ✓ | ✓ | ✓ | ✓ | If the first value is equal to the second value, then the condition is true. |
| not equal to | ✓ | ✓ | ✓ | ✓ | ✓ | If the first value is not not equal to the second value, then the condition is true. |
| between | | ✓ | ✓ | | ✓ | If the first value is in the range, then the condition is true. |
| not between | | ✓ | ✓ | | ✓ | If the first value is not in the range, then the condition is true. |
| greater than | | ✓ | ✓ | | ✓ | If the first value is greater than the second value, then the condition is true. |
| greater than or equal to | | ✓ | ✓ | | ✓ | If the first value greater than or equal to the second value, then the condition is true. |
| less than | | ✓ | ✓ | | ✓ | If the first value is less than the second value, then the condition is true. |
| less then or equal to | | ✓ | ✓ | | ✓ | If the first value is less then or equal to the second value, then the condition is true. |
| containing | ✓ | | | | | If the first value contains the second value, then the condition is true. This operation can be applied only to strings. |
| not containing | ✓ | | | | | If the first value does not contain the second value, |

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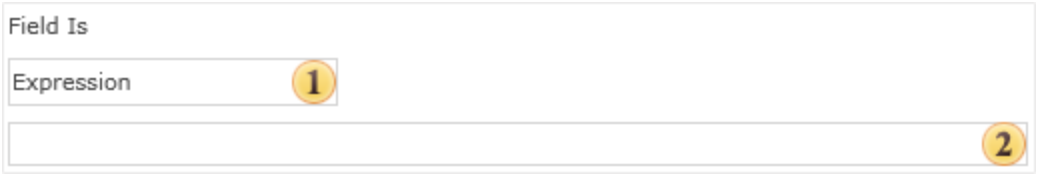
| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | | then the condition is true. This operation can be applied only to strings. |
| beginning with | ✓ | | | | | If the first value begins with the second value, then the condition is true. This operation can be applied only to strings. |
| ending with | ✓ | | | | | If the first value ends with the second value, then the condition is true. This operation can be applied only to strings. |

**How to set a condition using as an expression**

When using the **Expression** type of a condition, the condition is set as a text expression, that should return the boolean value. The picture below shows parameters of settings:




1 The way to select an expression;
2 The expression is specified in this field. It should return the boolean value. For example, the expression in C#:

```
Customers.ID == 53447
```

If the expression will return the value of not a boolean type, then the reporting tool will not be able to render an expression of this type.

## 5.12.13 Lists One After Another

Often it is necessary to output some lists one after another in a report. Stimulsoft Reports has no restrictions on it. All you have to do to render such a report is to place two **Data** bands with headers and footers bands. For example.

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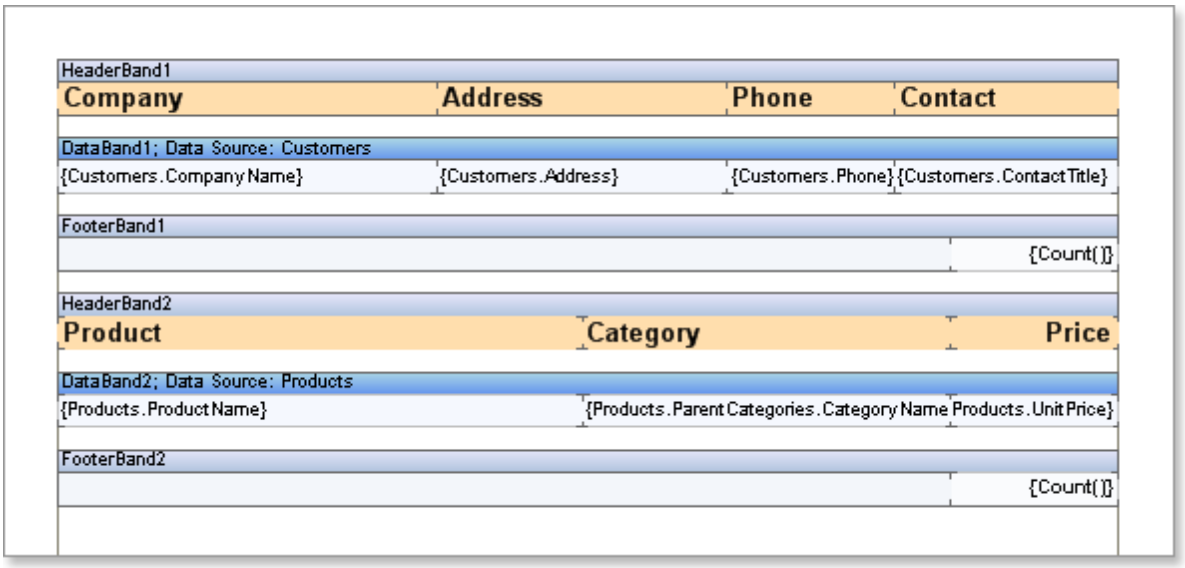
Put two **Data** bands on a page, specify them with different data sources. In addition create a header and a footer for the **Data** band. For this, place two **Header** bands and two **Footer** bands. How do you know which header and footer bands belong to the **Data** band? It's very simple. The **Header** band should be placed over the **Data** band. The **Footer** band should be placed under the **Data** band. Thus, the **Header** band or the **Footer** band are considered to belong to this **Data** band, if there are no other **Data** bands between them. For example, two bands of each type are placed on a page. The **HeaderBand1** band is placed over the **DataBand1** and there are no other **Data** bands between them. So it belongs to the **DataBand1**. But if to take the **DataBand2**, then between this band and the **HeaderBand1** band the **DataBand1** is placed. Therefore, the **HeaderBand1** does not belong to the **DataBand2**. The **FooterBand1** is placed under the **DataBand1** band and there are no other **Data** bands between them. So it belongs to the **DataBand1**. But the **FooterBand2** band is placed under the **DataBand1**, and the **DataBand2**. But there is the **DataBand2** in placed between the **DataBand1** and the **FooterBand2**. Therefore, the **FooterBand2** belong the the **DataBand2**. Here is an example of a report template, which outputs several lists one after another.




The first **Data** band will output the first list. When the list will be output the second list will be output. The second band will output on the second list. The number of lists is unlimited. The picture below shows the sample of how to output a report with with two lists.

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| Company | Address | Phone | Contact |
|---|---|---|---|
| The Cracker Box | 55 Grizzly Peak Rd. | (406) 555-5834 | Marketing Assistant |
| Toms Spezialitäten | Luisenstr. 48 | 0251-031259 | Marketing Manager |
| Tortuga Restaurante | Avda. Azteca 123 | (5) 555-2933 | Owner |
| Tradição Hipermercados | Av. Inês de Castro, 414 | (11) 555-2167 | Sales Representative |
| Trail's Head Gourmet Provisioners | 722 DaVinci Blvd. | (206) 555-8257 | Sales Associate |
| Vaffeljernet | Smagsloget 45 | 86 21 32 43 | Sales Manager |
| Victuailles en stock | 2, rue du Commerce | 78.32.54.86 | Sales Agent |
| Vins et alcools Chevalier | 59 rue de l'Abbaye | 26.47.15.10 | Accounting Manager |
| Wartian Herkku | Torikatu 38 | 981-443655 | Accounting Manager |
| Wellington Importadora | Rua do Mercado, 12 | (14) 555-8122 | Sales Manager |
| White Clover Markets | 305 - 14th Ave. S. Suite 3B | (206) 555-4112 | Owner |
| Wilman Kala | Keskuskatu 45 | 90-224 8858 | Owner/Marketing Assistant |
| Wolski Zajazd | ul. Filtrowa 68 | (26) 642-7012 | Owner |

91

| Product | Category | Price |
|---|---|---|
| Alice Mutton | Meat/Poultry | 39 |
| Aniseed Syrup | Condiments | 10 |
| Boston Crab Meat | Seafood | 18,4 |
| Camembert Pierrot | Dairy Products | 34 |
| Carnarvon Tigers | Seafood | 62,5 |
| Chai | Beverages | 18 |

## 5.12.14 PrintOn Property

The PrintOn property have all components including HeaderBand and FooterBand. This property is used to display a component on report pages according to the value of this property. If the property is set to **All pages**, then components will be shown as usually. If the property is set to any other value then the component will not be showing on the first/last page of a report or on the contrary will be shown on all pages except the first/last ones.

The **PrintOn** property has the following values:
- **All pages**;
- **ExceptFirstPage**;
- **ExceptLastPage**;
- **ExceptFirstAndLastPages**;
- **OnlyFirstPage**;
- **OnlyLastPage**;
- **OnlyFirstAndLastPages**.

The picture below shows a report sample with the **PrintOn** property of the **HeaderBand** set to **OnlyFirstPage**.

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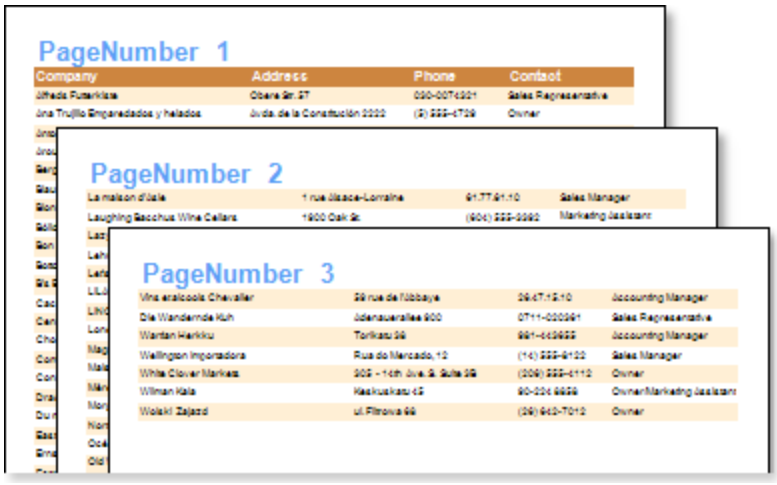
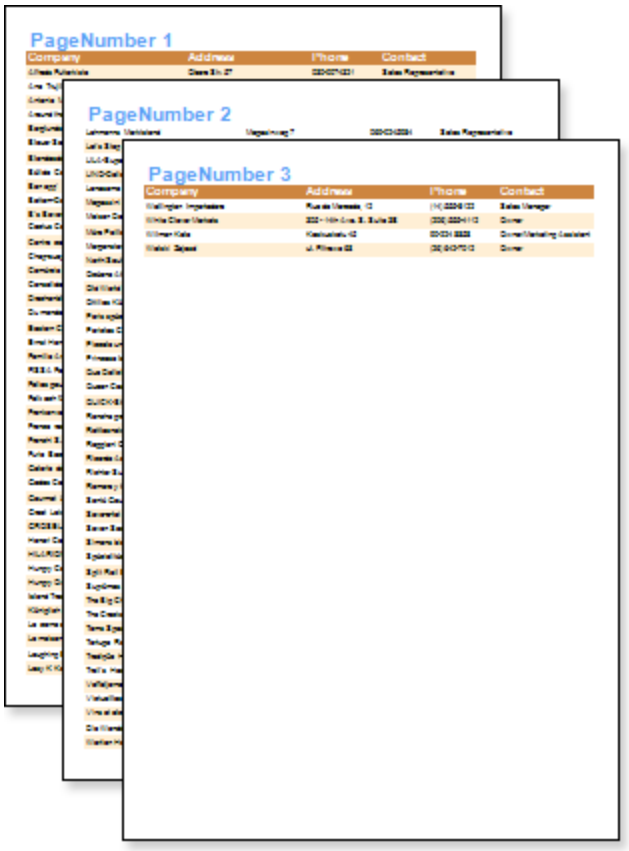



## 5.12.15 PrintOnEvenOddPages Property

The **PrintOnEvenOddPages** property is used to print headers and footers on even/odd pages, for **HeaderBands** and **FooterBands**.




The picture above shows a sample of a report with the **PrintOnEvenOddPages** property of the **HeaderBand** set to **OddPage**.

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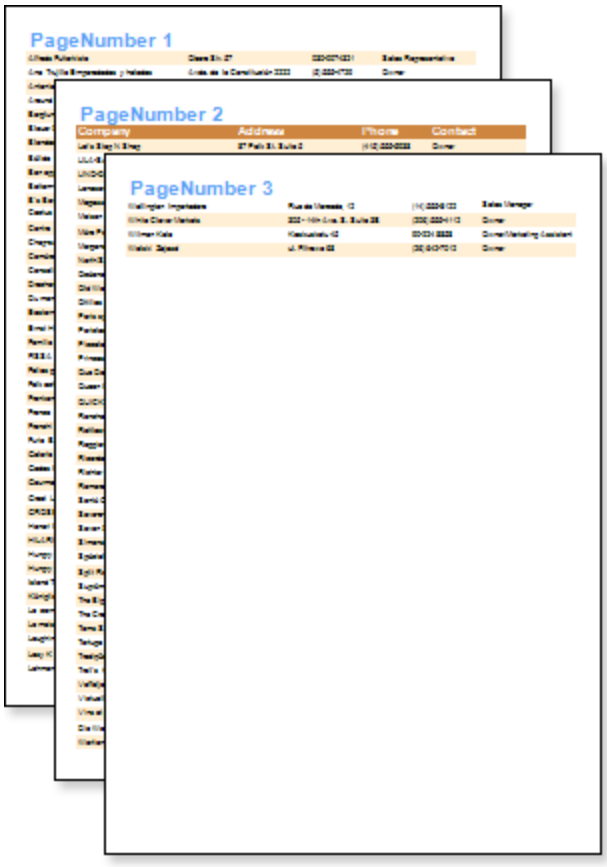


The picture above shows a sample of a report with the **PrintOnEvenOddPages** property of the **HeaderBand** set to **EvenPage**.

Three values are available for this property:
- **Ignore**. Headers and footers are printed on all pages;
- **PrintOnEvenPages**. Headers and footers are printed on even pages;
- **PrintOnOddPage**. Headers and footers are printed on odd pages.

## 5.12.16 PrintOnAllPages Property

**HeaderBand**, **FooterBand**, **ColumnHeaderBand**, **ColumnFooterBand**, **GroupHeaderBand** have the **PrintOnAllPages** property, which may have two of the following values: **true** and **false**. If the property is set to **false**, then bands are printed one time in a report before/after the DataBand to which they are related. If the property is set to **true**, then these bands are printed only on report pages where a Data Band to which they are related is printed. The bands mentioned above are printed before/after their Data Band. By default the **PrintOnAllPages** property is set to **true** for **HeaderBand** and **ColumnHeaderBand**. For other bands this property is set to **false**.

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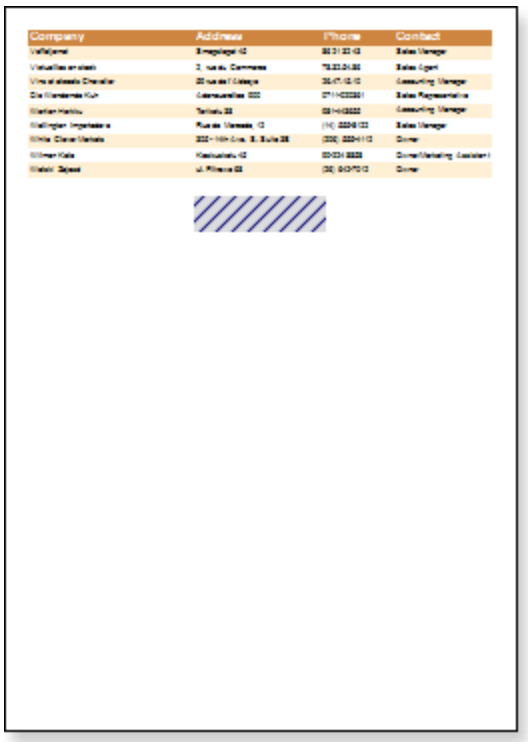
## 5.12.17 PrintAtBottom Property

**HeaderBand** and **FooterBand** have the **PrintAtBottom** property.
Sometimes data take third part of a page and the data footer will be output right after the data ends.




The picture above shows data footer output after data.
If you want to output the footer on the bottom of the page, then set the **PrintAtBottom** property for the FooterBand to **true**.
The data footer will be displayed at the bottom of the page.

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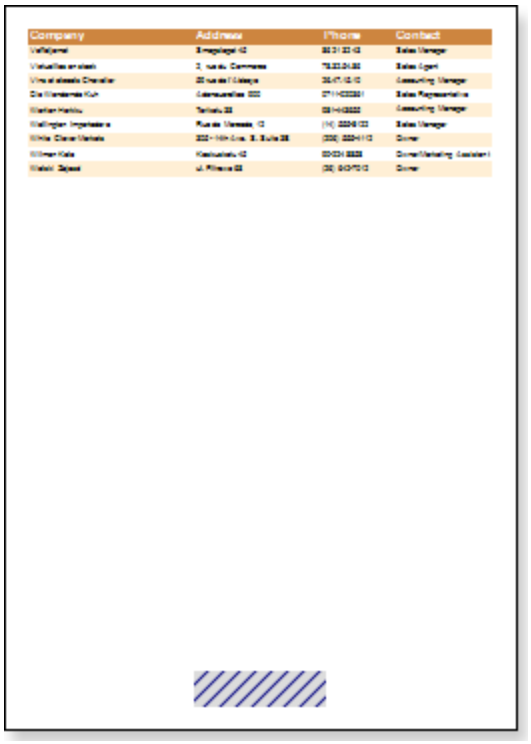


The default value of the property is set to **false**.

## 5.12.18 Drag and Drop From Dictionary

The report designer supports a way of dragging components, including the data dictionary. You can drag and drop data sources, columns, variables, functions, and more. You can create a list simply by dragging the data source from the dictionary in the report template. The picture below shows an example of dragging the data source Order Details from the Dictionary on the report page.

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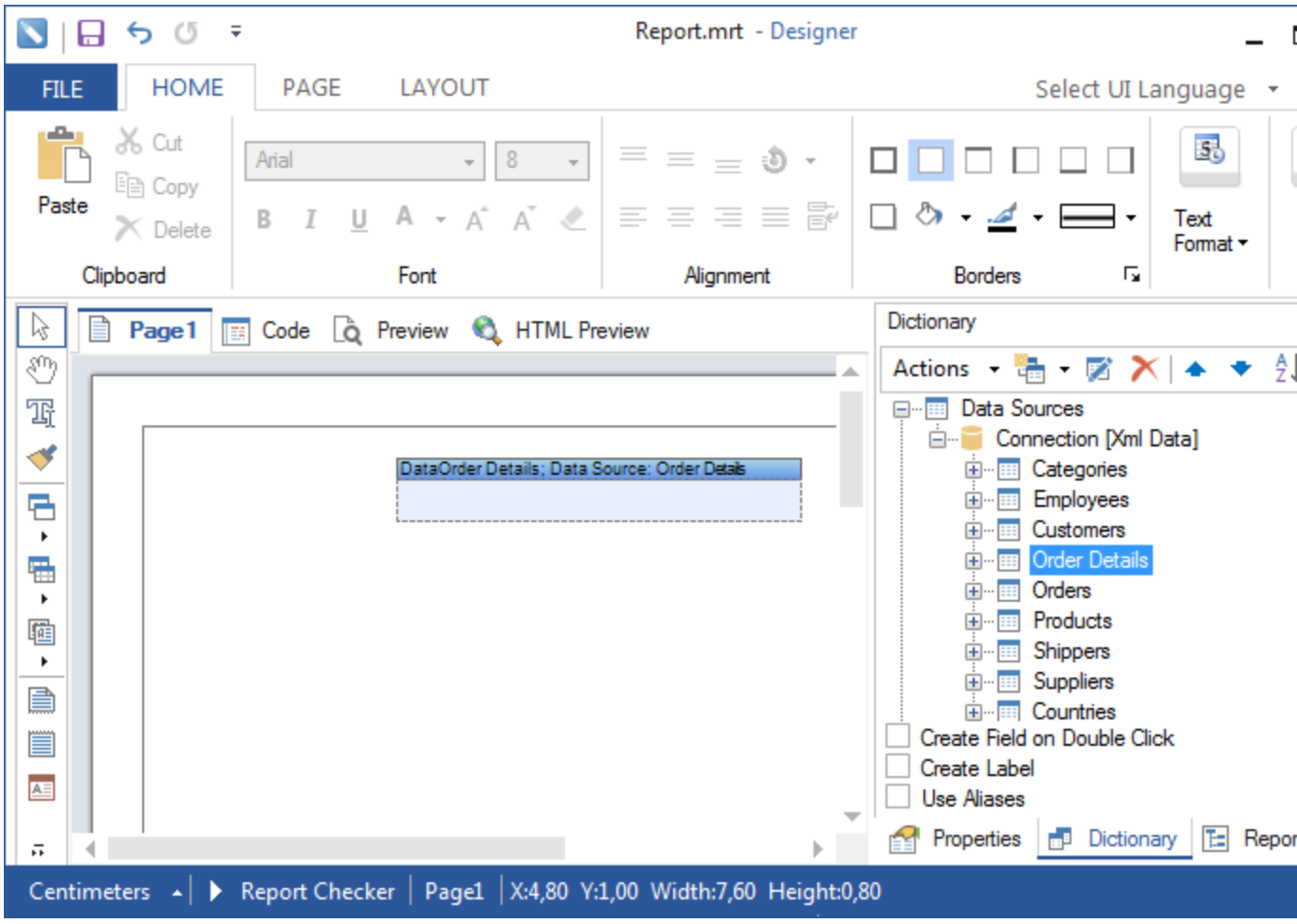


After you release the left mouse button, you will see a dialog box Data, in which you should set the parameters of a new report template. Below is a Data dialog:

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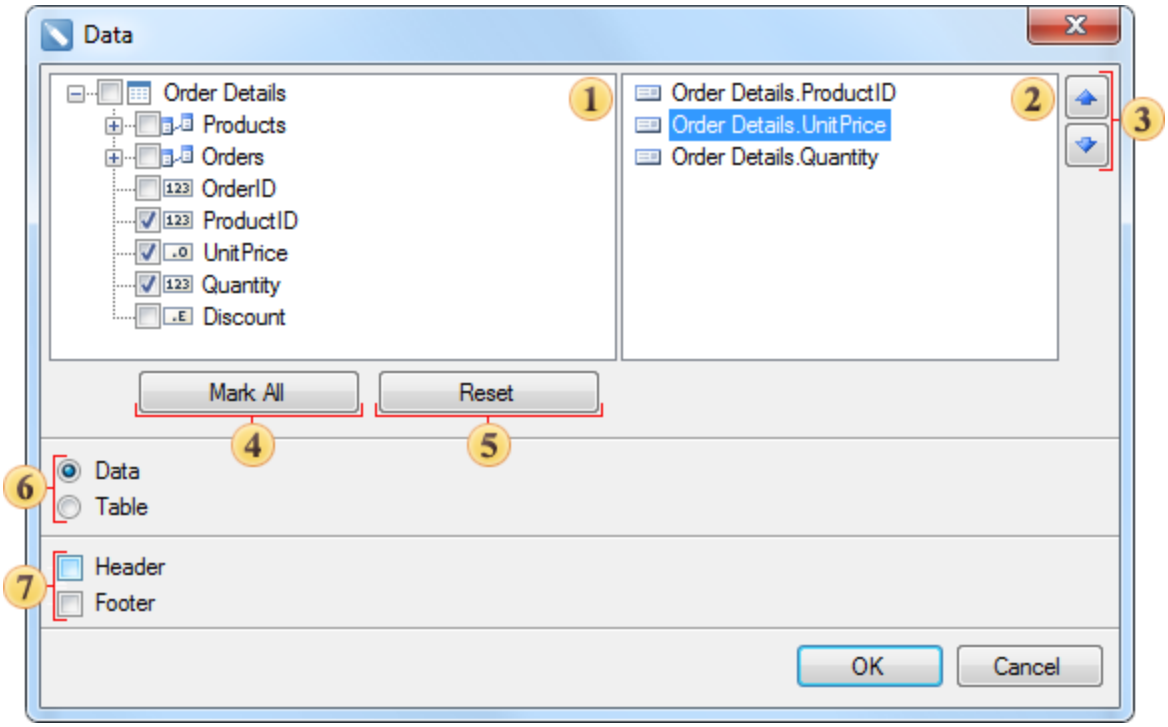


1 This panel displays the columns which contain the data source and the connection between sources. If you need to select the column, references which will be present in the text components on the data band.
2 This panel displays the selected data columns and their order. The order (top-down) on this panel is the order of arrangement of text components on the data band from left to right.
3 These buttons are used to move the selected columns on the panel 2, thus changing the order of text components on the data band.
4 The button **Mark All**. When clicking it, all columns (a checkbox is set to true) on the panel are selected.
5 The button **Reset**. When clicking, it sets the selection parameters by default (checkbox is set to false), i.e. no column are selected.
6 Selects a container for data: data band and a table.
7 If you want to add bands Header and/or Footer into the report template, you should set the appropriate option.

## 5.12.19 Check Box

For displaying Boolean values, you can use the **Check Box** component. Various styles can be applied to it. The picture below shows the available styles of check boxes:

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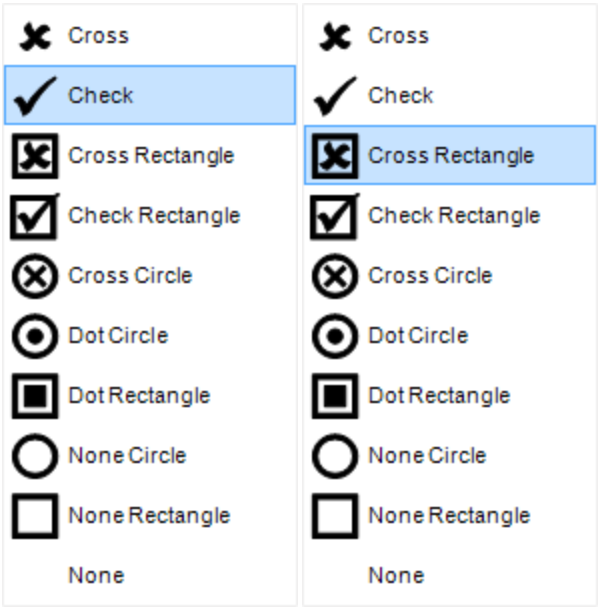
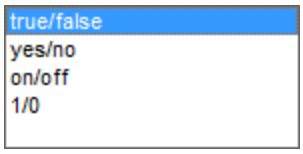



You can set a checkbox style to each Boolean value. To do this, select values of the Style property for True (Check style for **True**) and style values for False (Check style for **False**). You can also change the type of values.




selecting the necessary type in the property field **Values**.

## 5.13 Creating Master-Detail Lists

The previous topic describes how to create a report using data as a table. And data are not connected to each other. Three bands were used: **Data**, **Header,** and **Footer**. But sometimes it is required to create reports and output data which are organized in some levels and connected to each other. For example, invoice and a list of goods, clients and goods delivery to them etc. In this case **Master-Detail** reports are used. These are reports in which the output value of the Master data source, corresponds to the number of values (from 0 and greater) from the Detail data source. On the picture below the example of the Master-Detail report is shown:

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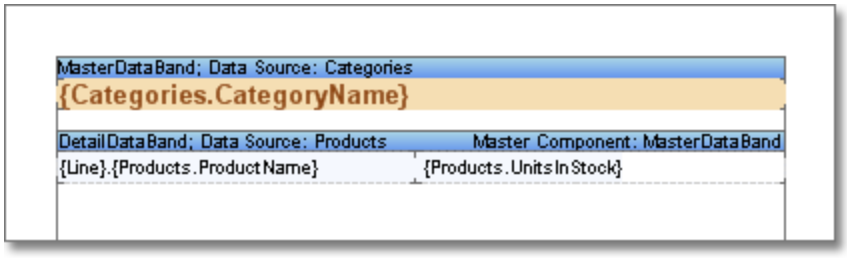
| Beverages | |
|---|---|
| 1.Chai | 10 boxes x 20 bags |
| 2.Chang | 24 - 12 oz bottles |
| 3.Chartreuse verte | 750 cc per bottle |
| 4.Côte de Blaye | 12 - 75 cl bottles |
| 5.Guaraná Fantástica | 12 - 355 ml cans |
| 6.Ipoh Coffee | 16 - 500 g tins |
| 7.Lakkalikööri | 500 ml |
| 8.Laughing Lumberjack Lager | 24 - 12 oz bottles |
| 9.Outback Lager | 24 - 355 ml bottles |
| 10.Rhönbräu Klosterbier | 24 - 0.5 l bottles |
| 11.Sasquatch Ale | 24 - 12 oz bottles |
| 12.Steeleye Stout | 24 - 12 oz bottles |
| 12 | |
| **Condiments** | |
| 1.Aniseed Syrup | 12 - 550 ml bottles |
| 2.Chef Anton's Cajun Seasoning | 48 - 6 oz jars |
| 3.Chef Anton's Gumbo Mix | 36 boxes |
| 4.Genen Shouyu | 24 - 250 ml bottles |
| 5.Grandma's Boysenberry Spread | 12 - 8 oz jars |
| 6.Gula Malacca | 20 - 2 kg bags |
| 7.Louisiana Fiery Hot Pepper Sauce | 32 - 8 oz bottles |
| 8.Louisiana Hot Spiced Okra | 24 - 8 oz jars |
| 9.Northwoods Cranberry Sauce | 12 - 12 oz jars |
| 10.Original Frankfurter grüne Soße | 12 boxes |
| 11.Sirop d'érable | 24 - 500 ml bottles |
| 12.Vegie-spread | 15 - 625 g jars |
| 12 | |

As one can see on the picture, each category of products corresponds to the list of products from this category. An example of the Master-Detail report template is shown on the picture below:




Data are output in the Detail part of the Master-Detail report are nested data. These data are as if nested into one data row of the Master data source. And the number of nesting is called the level of nesting. For example, if in the report the Master-Detail report two lists are output and the second list is connected with the first list, then this report will have two levels of nesting (the first is the Master, and the second is the Detail). And if this detailed list will have an additional list which will detail this list, then this report will have three levels of nesting (the first is the Master, the second is the Detail, and the third is the SubDetail). The number of nesting is unlimited. Usually number of nesting is no more than 3-4

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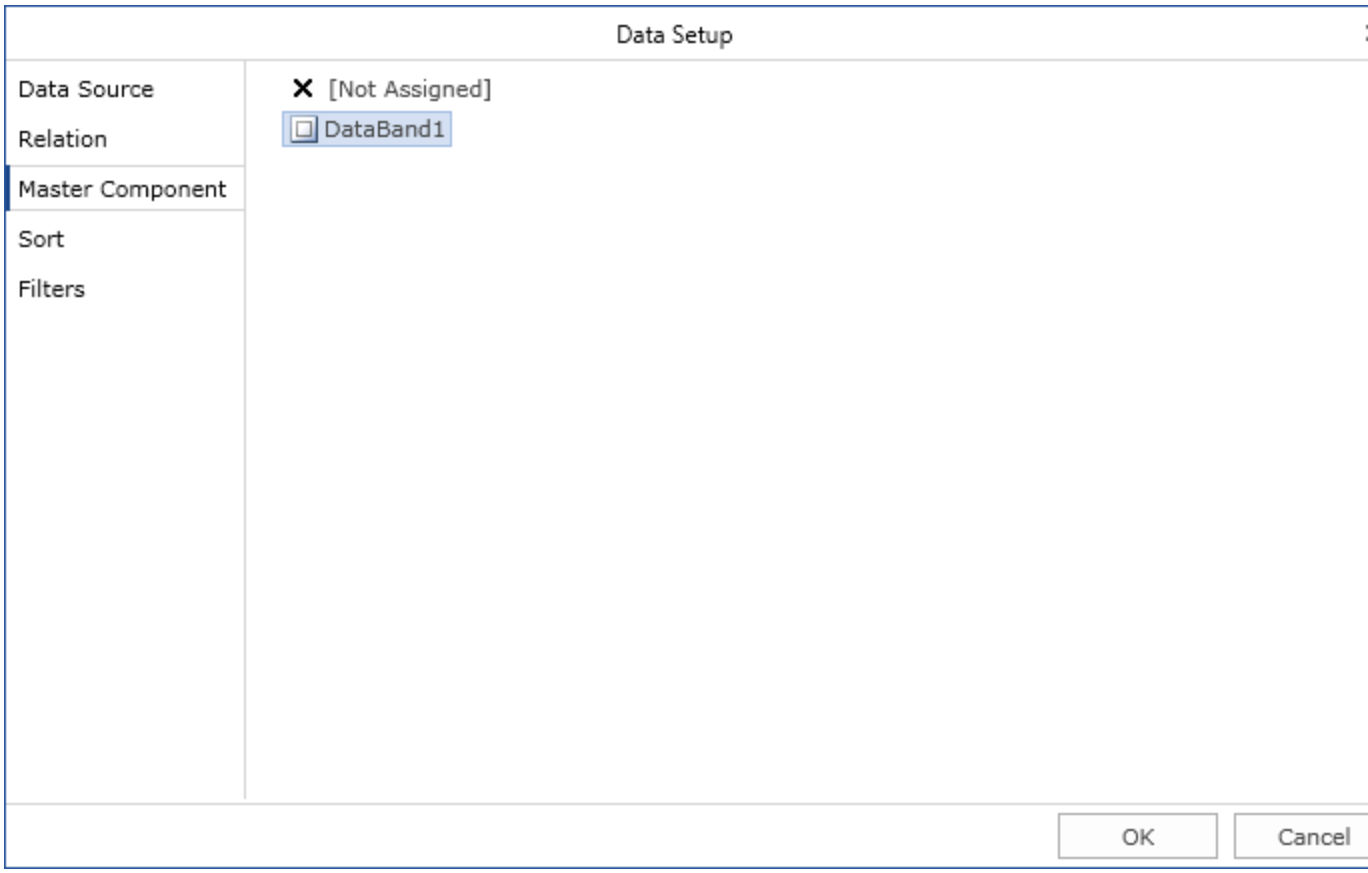
levels.

### 5.13.1 MasterComponent Property

Put two **Data** bands on a page to start creating the Master-Detail report. Specify the Master data source to the first band (this is the Master band). Specify the Detail data source to the second band (this is the Detail). Then, it is necessary to bind these bands using the **MasterComponent** property of the second band. The Master band should be selected.

The selection can be made in the **Data** band editor window.




After filling the **MasterComponent** property two bands will be bound to each other. When printing one row of the Master band, all rows of the Detail band will be output. The Detail band will not be printed itself but only in relation to the Master band.

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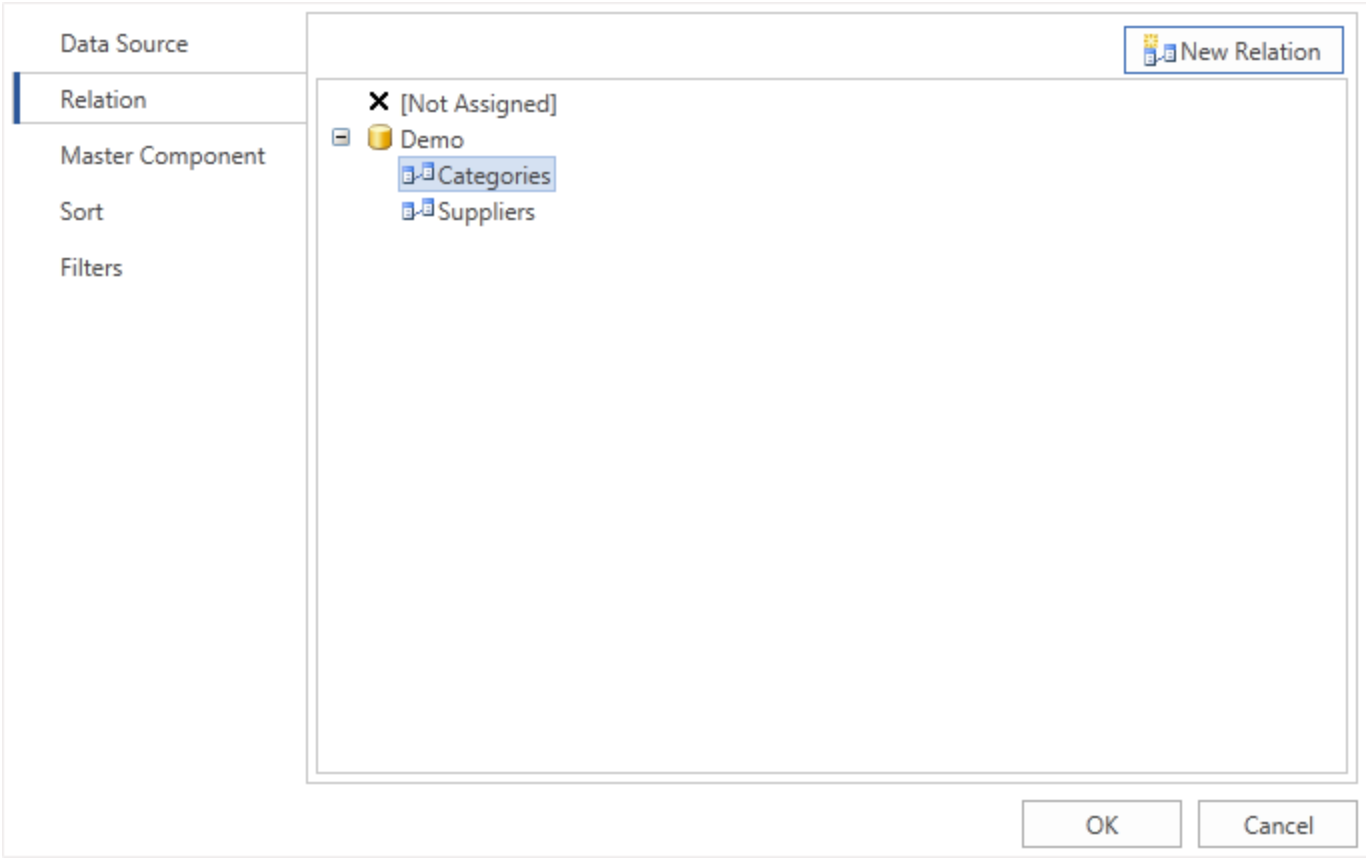
## 5.13.2 DataRelation Property

After filling the **MasterComponent** property it is necessary to fill the **DataRelation** property of the Detail band. This relation is used to select detailed data only for the specific Master band row. If the relation is not specified, then all Detail band rows will be output for each rows of the Master band.

Selection of relation occurs using the **Data** band editor, as well as in case with the **MasterComponent** property.




Selection is done between relations which were created between Master and Detail data sources, and in which the Detail data source is subordinate data source. There can be more than one relation (for example, as seen on the picture above). Therefore, it is important to select the correct relation.

### 5.13.2.1 Relation

If the **Relation** is not specified in the **Master-Detail** report, then, for each **Master** record, all **Detail** records will be printed. In order to build a **Master-Detail** report, which will print only those **Detail** records that are associated with this **Master** record, you should create a **Relation** between data sources. The **Relation** describes the relationship between data sources such as "master-detail". For

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example, in the table of the **Categories** data source in the **CategoriesID** data column, may be one record with a unique name **1**, and in the table of the **Products** data source in the **CategoriesID** column data may be many records with the same unique name **1**. The picture below shows an example of data source tables:

Categories

| CategoryID | CategoryName | Description |
|---|---|---|
| 1 | Beverages | Soft drinks, coffees, teas, beer |
| 2 | Condiments | Sweet and savory sauces |
| 3 | Confections | Desserts, candies, and sweet |
| 4 | Dairy Products | Cheeses |
| 5 | Grains/Cereals | Breads, crackers, pasta, and |
| 6 | Meat/Poultry | Prepared meats |
| 7 | Produce | Dried fruit and bean curd |
| 8 | Seafood | Seaweed and fish |

Products

| ProductID | ProductName | SupplierID | CategoryID |
|---|---|---|---|
| 1 | Chai | 1 | 1 |
| 2 | Chang | 1 | 1 |
| 24 | Guaraná Fant | 10 | 1 |
| 34 | Sasquatch Al | 16 | 1 |
| 35 | Steeleye Sto | 16 | 1 |
| 38 | Côte de Blay | 18 | 1 |
| 39 | Chartreuse v | 18 | 1 |
| 43 | Ipoh Coffee | 20 | 1 |
| 67 | Laughing Lu | 16 | 1 |
| 70 | Outback Lag | 7 | 1 |
| 75 | Rhönbräu Klo | 12 | 1 |
| 76 | Lakkalikööri | 23 | 1 |
| 3 | Aniseed Syru | 1 | 2 |
| 4 | Chef Anton's | 2 | 2 |

As can be seen from the picture above, one record with the name **1** in the table of the **Categories** data source corresponds to 12 records in the table of the **Products** data source. In other words, if you create a **Relation** by the **CategoriesID** column data between **Categories** and **Products** data tables, then when creating the **Master-Detail** report, the first **Master** record will correspond to **Detail** 12 entries. The picture below shows an example of the rendered **Master-Detail** report by **CategoryName** and **ProductName** columns, where the **Relation** is arranged between the **Product** and **Category** data sources by columns of **CategoryID** data:

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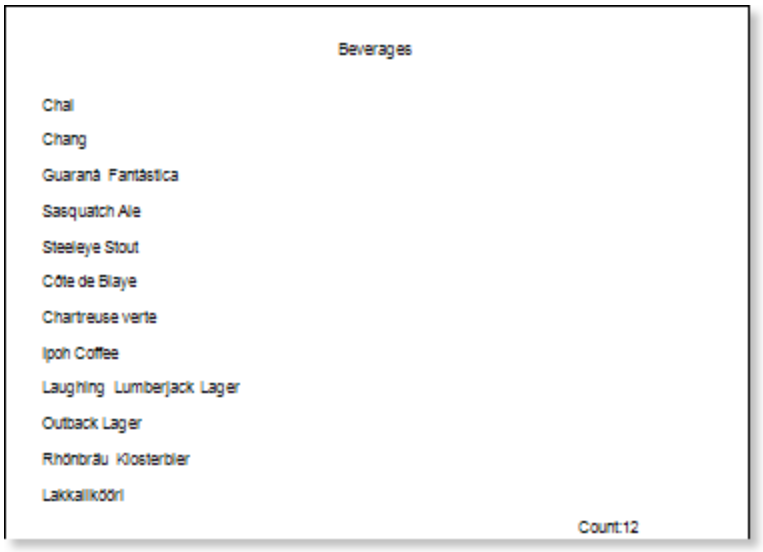


The parameters of relations are specified in the **New Relation** window. To invoke this window, choose the **New Relation** item from the context menu of the data source or click the **New Relation** button form the **Data Setup** window in the **Relation** tab. The picture below shows an example of the **New Relation** window:

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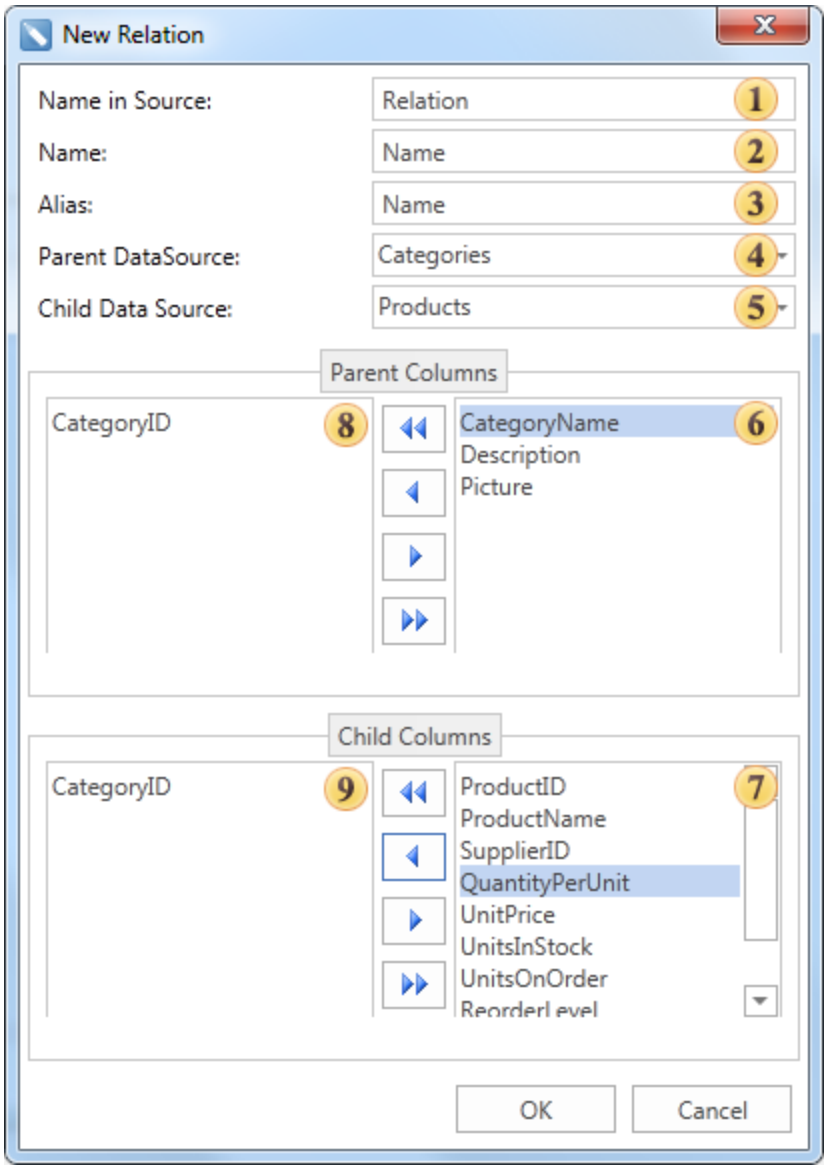


As can be seen on the picture above, nine fields, which define the relation parameters:

1 The **Name in Source** field provides an opportunity to change the name of the data source (not in the report), i.e. the name in the original data source, for example, in a database;
2 The **Name** field provides an opportunity to change the name of the relation that is displayed to a user;
3 The **Alias** field provides an opportunity to change the alias of the relation;
4 The **Parent DataSource** field provides an opportunity to change the main data source, i.e. the data source which entries are **Master** entries in the **Master-Detail** report is selected;
5 The **Child Data Source** provides an opportunity to change the child data source, i.e. the data source which entries are **Detail** entries in the **Master-Detail** report is selected;
6 This field displays the column-keys of the master data source;
7 This field displays the column-keys of the child data source;
8 - 9 fields shows the master and child data column-keys, which set the **Relation** between data

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sources. Column-keys should comply with all rules of creation relations in ADO.NET:
1 It should be the same number of them;
2 Their types should match, i.e. if the master column-key of the **String** type, then the child column-key should be of the **String** type;
3 And so on;

Control panel of data columns in the **New Relation** dialog box is represented by 4 buttons.

1 The button to move all data columns from the field 6 or 7 in the field 8 or 9, respectively;
2 The button to move the selected data column from the field 6 or 7 in the field 8 or 9, respectively;
3 The button to move the selected data column from the field 8 or 9 in the field 6 or 7, respectively;
4 The button to move all the data columns from the field 8 or 9 in the field 6 or 7, respectively.

### 5.13.3 Multilevel Nesting

The logic of building Master-Detail reports with more than 2 nesting levels is the same as the logic of building simple Master-Detail reports. For each Detail band the **MasterComponent** and **DataRelation** properties are set. For example, it is necessary to render a report in what there are four nesting levels. The first level is **countries**, the second - **regions**, the third - **cities**, the fourth - **quarters**. In this case one should place **Data** bands one on another on a page for each data source. Set the **MasterComponent** of the second band on the band **countries**. This property for the third band will indicate the **regions** band. For the last band **quarters** - will indicate on the **cities** band.

Then it is necessary to select relations for three bands for the report generator is able to select correct data for each detailed band.

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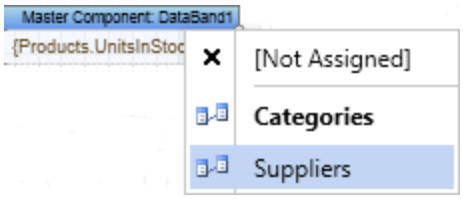


Then this report will be ready for rendering. One **Master** band may have more than one **Detail** band. In other words two, three or four **Detail** bands may refer to it. And each of them may have their own Detail bands. There are no limitations on number of nesting levels in the **Master-Detail** reports.

**Notice:** Number of nesting levels in the Master-Detail reports is unlimited.

### 5.13.4 KeepDetailsTogether Property

Sometimes, when creating **Master-Detail** reports, a part Details (subordinate entries) of the **Master-Detail** band will be on one page, while another part will be moved to the next page. This may happen due to the fact that all the detailed records will not fit one page. In this case, if it is still necessary to output the **Master** along with its details on one page, you can use the **KeepDetailsTogether** property. By default, this property is set to **false**.

The picture above shows a report in what a part of Details is located on one page, while the other part of details has been moved to the next page. If property is set to **true**, then the report generator will try to place the **Master** and **Detail** records on one page. If the report generator cannot do it, the **Master** and **Details** together will be moved to the next page.

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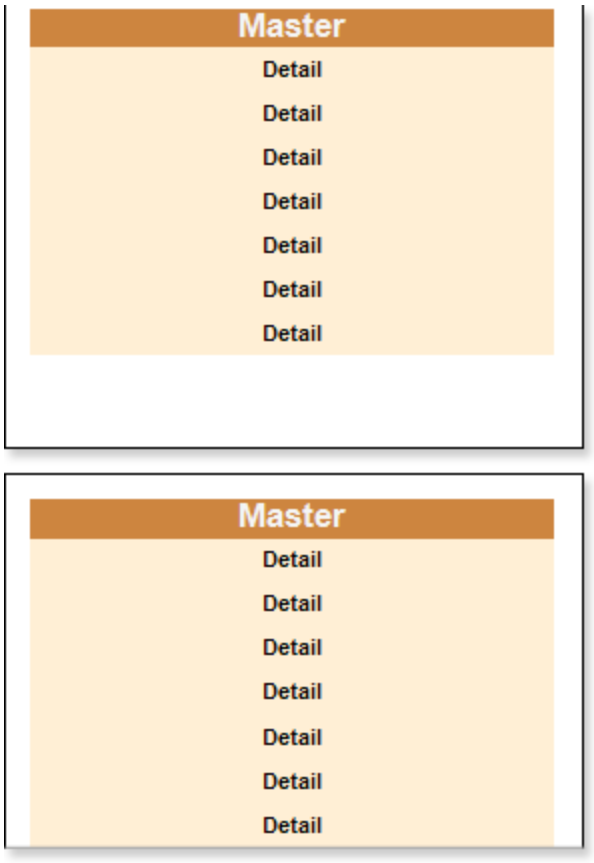


The picture above shows an example of a report with the **KeepDetailsTogether** property of the **Master** set to **true**. If it is not possible to put them together, then the data will be forcibly broken and displayed on different pages. In this case, if the **Master** component has many **Detail** records and take a significant part on the page, and the **KeepDetailsTogether** property is set to **true**, then there may be a large empty space at the bottom of each page.

### 5.13.5 Rows Numbering in Master-Detail Reports

Rows numbering in the Master-Detail reports works the same as in ordinary lists. But there is on difference. If numbering is used in the Detail of the **Data** band, then for each sublist there will be their own numbering. For example, on the picture below the Master-Detail report is shown.

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| | |
|---|---|
| **1.Beverages** | |
| 1.Chai | 10 boxes x 20 bags |
| 2.Chang | 24 - 12 oz bottles |
| 3.Chartreuse verte | 750 cc per bottle |
| 4.Côte de Blaye | 12 - 75 cl bottles |
| 5.Guaraná Fantástica | 12 - 355 ml cans |
| 6.Ipoh Coffee | 16 - 500 g tins |
| 7.Lakkalikööri | 500 ml |
| 8.Laughing Lumberjack Lager | 24 - 12 oz bottles |
| 9.Outback Lager | 24 - 355 ml bottles |
| 10.Rhönbräu Klosterbier | 24 - 0.5 l bottles |
| 11.Sasquatch Ale | 24 - 12 oz bottles |
| 12.Steeleye Stout | 24 - 12 oz bottles |
| **2.Condiments** | |
| 1.Aniseed Syrup | 12 - 550 ml bottles |
| 2.Chef Anton's Cajun Seasoning | 48 - 6 oz jars |
| 3.Chef Anton's Gumbo Mix | 36 boxes |
| 4.Genen Shouyu | 24 - 250 ml bottles |
| 5.Grandma's Boysenberry Spread | 12 - 8 oz jars |
| 6.Gula Malacca | 20 - 2 kg bags |
| 7.Louisiana Fiery Hot Pepper Sauce | 32 - 8 oz bottles |
| 8.Louisiana Hot Spiced Okra | 24 - 8 oz jars |
| 9.Northwoods Cranberry Sauce | 12 - 12 oz jars |
| 10.Original Frankfurter grüne Soße | 12 boxes |
| 11.Sirop d'érable | 24 - 500 ml bottles |
| 12.Vegie-spread | 15 - 625 g jars |

Numbering in the Master list is indicated with the red color. Numbering in the Detail list is indicated with green color. As you can see on the picture, the numbering in the Detail list starts every time after the row from the Master list is output.

Besides using system variables numbering can be done using the **Line** property of the **Data** band. In this case the expression will be as follow:

```
{DetailDataBand1.Line}.{Customers.CompanyName}
```

Why is it necessary? Why not to use the **Line** system variable? The system variable has the visibility zone. For example, you use the **Line** system variable on the Master band. In this case numbering will be output for the Master band. If you use the **Line** system variable on the Detail band, then, in this case, numbering will be output for the Detail band. But what to do if it is necessary to output numbering of two different **Data** bands in one expression? In this case the **Line** property of the **Data** band is used. For example, see the following expression on the Detail band:

```
{DataBand1.Line}.{Line}.{Products.ProductName}
```

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this will lead to the following result in a report:

| | |
|---|---|
| **1.Beverages** | |
| 1.1.Chai | 10 boxes x 20 bags |
| 1.2.Chang | 24 - 12 oz bottles |
| 1.3.Chartreuse verte | 750 cc per bottle |
| 1.4.Côte de Blaye | 12 - 75 cl bottles |
| 1.5.Guaraná Fantástica | 12 - 355 ml cans |
| 1.6.Ipoh Coffee | 16 - 500 g tins |
| 1.7.Lakkalikööri | 500 ml |
| 1.8.Laughing Lumberjack Lager | 24 - 12 oz bottles |
| 1.9.Outback Lager | 24 - 355 ml bottles |
| 1.10.Rhönbräu Klosterbier | 24 - 0.5 l bottles |
| 1.11.Sasquatch Ale | 24 - 12 oz bottles |
| 1.12.Steeleye Stout | 24 - 12 oz bottles |
| **2.Condiments** | |
| 2.1.Aniseed Syrup | 12 - 550 ml bottles |
| 2.2.Chef Anton's Cajun Seasoning | 48 - 6 oz jars |
| 2.3.Chef Anton's Gumbo Mix | 36 boxes |
| 2.4.Genen Shouyu | 24 - 250 ml bottles |
| 2.5.Grandma's Boysenberry Spread | 12 - 8 oz jars |
| 2.6.Gula Malacca | 20 - 2 kg bags |
| 2.7.Louisiana Fiery Hot Pepper Sauce | 32 - 8 oz bottles |
| 2.8.Louisiana Hot Spiced Okra | 24 - 8 oz jars |
| 2.9.Northwoods Cranberry Sauce | 12 - 12 oz jars |
| 2.10.Original Frankfurter grüne Soße | 12 boxes |
| 2.11.Sirop d'érable | 24 - 500 ml bottles |
| 2.12.Vegie-spread | 15 - 625 g jars |

### 5.13.6 Through Lines Numbering in Master-Detail Reports

Besides the **Line** system variable, there is also additional **LineThrough** system variable for numbering the **Master-Detail** lists. What is the difference? The **LineThrough** system variable is used to output numbers using the continuous numbering. On the picture below the same report with continuous numbering is shown.

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| 1.Beverages | |
|---|---|
| 1.Chai | 10 boxes x 20 bags |
| 2.Chang | 24 - 12 oz bottles |
| 3.Chartreuse verte | 750 cc per bottle |
| 4.Côte de Blaye | 12 - 75 cl bottles |
| 5.Guaraná Fantástica | 12 - 355 ml cans |
| 6.Ipoh Coffee | 16 - 500 g tins |
| 7.Lakkalikööri | 500 ml |
| 8.Laughing Lumberjack Lager | 24 - 12 oz bottles |
| 9.Outback Lager | 24 - 355 ml bottles |
| 10.Rhönbräu Klosterbier | 24 - 0.5 l bottles |
| 11.Sasquatch Ale | 24 - 12 oz bottles |
| 12.Steeleye Stout | 24 - 12 oz bottles |
| **2.Condiments** | |
| 13.Aniseed Syrup | 12 - 550 ml bottles |
| 14.Chef Anton's Cajun Seasoning | 48 - 6 oz jars |
| 15.Chef Anton's Gumbo Mix | 36 boxes |
| 16.Genen Shouyu | 24 - 250 ml bottles |
| 17.Grandma's Boysenberry Spread | 12 - 8 oz jars |
| 18.Gula Malacca | 20 - 2 kg bags |
| 19.Louisiana Fiery Hot Pepper Sauce | 32 - 8 oz bottles |
| 20.Louisiana Hot Spiced Okra | 24 - 8 oz jars |
| 21.Northwoods Cranberry Sauce | 12 - 12 oz jars |
| 22.Original Frankfurter grüne Soße | 12 boxes |
| 23.Sirop d'érable | 24 - 500 ml bottles |
| 24.Vegie-spread | 15 - 625 g jars |

In this case the numbering of the Detail list starts not after the row of the Master list is output but before the first row of the Detail list is output. The system variable starts numbering with 1.

## 5.13.7 Headers, Footers and Master-Detail Reports

The principle of using **HeaderBands** and **FooterBands** in **Master-Detail** reports is the same as in simple lists. All **HeaderBand1** bands, which are placed above the **DataBand1** bands, up to the next **DataBand2** band, belong to this **DataBand1** band. The **HeaderBand** is placed on the page above the **DataBand**, which outputs data rows. The **HeaderBand** always refers to any particular **DataBand**. Typically, this band is the first **DataBand**, which is located below the **HeaderBand**.
The **FooterBand** is placed below the **DataBand**. And it is meant that the **DataBand**, with what the **HeaderBand** is bind. Each **FooterBand**, refers to any specific **HeaderBand**. Without the **HeaderBand**, the **FooterBand** is not output.

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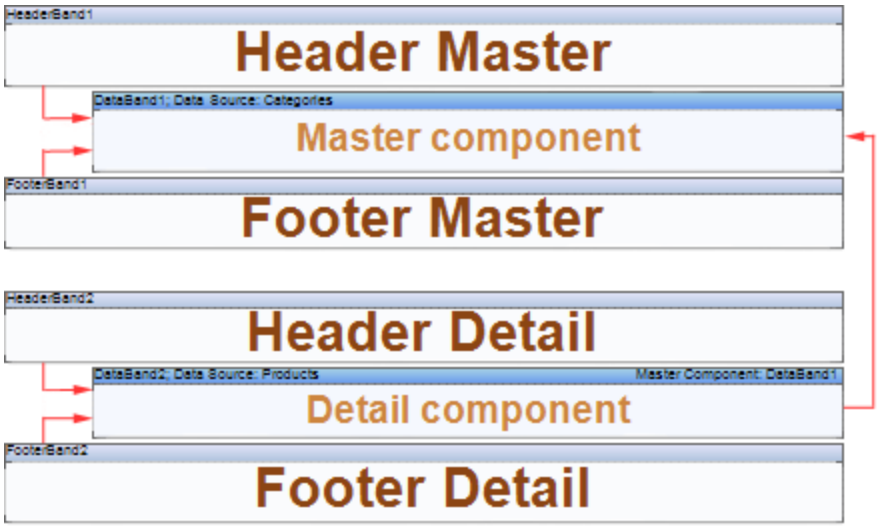


The picture above shows a structure of a **Master-Detail** reports with two **DataBand** bands.

## 5.13.8 PrintifDetailEmpty Property

The **PrintifDetailEmpty** property of the **DataBand** band is used in building **Master-Detail** reports. The picture below shows a template of a **Master-Detail** report.

For example, not all **Master** entries have **Detail** records. Then, if the **PrintIfDetailEmpty** property is set to **false**, then the result shown below is obtained:

| | | |
|---|---|---|
| 2 | Condiments | Sweet and savory sauces, relishes, spreads, and seasonings |
| 3 | Aniseed Syrup | 10 |
| 6 | Meat/Poultry | Prepared meats |
| 17 | Alice Mutton | 39 |

Only a part of Master records (in the picture above they are marked with numbers 2 and 6) will be output and the remaining Master records (which have no Detail records) will not be output. To print all Master records, regardless whether they have Detail records, it is necessary to set the **PrintifDetailEmpty** property of the Master band to **true**. An example of a report for this case is shown below below:

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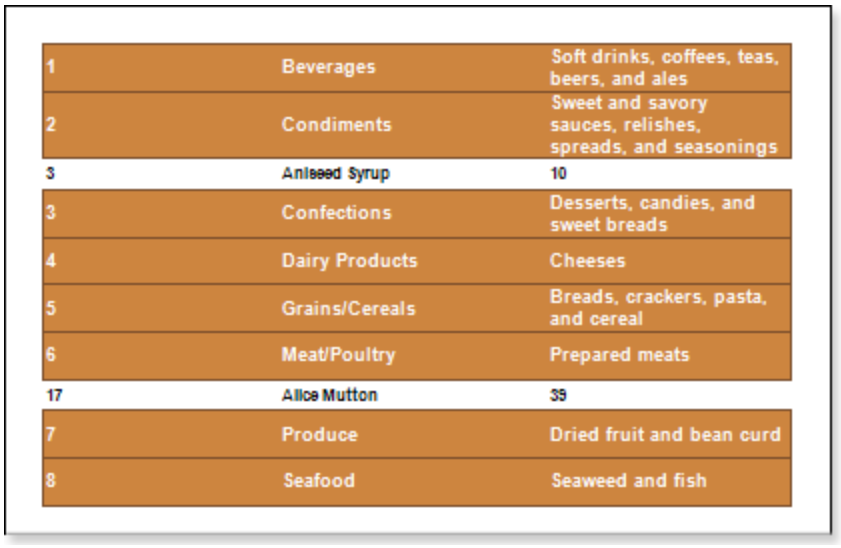

| | | |
|---|---|---|
| 1 | Beverages | Soft drinks, coffees, teas, beers, and ales |
| 2 | Condiments | Sweet and savory sauces, relishes, spreads, and seasonings |
| 3 | Aniseed Syrup | 10 |
| 3 | Confections | Desserts, candies, and sweet breads |
| 4 | Dairy Products | Cheeses |
| 5 | Grains/Cereals | Breads, crackers, pasta, and cereal |
| 6 | Meat/Poultry | Prepared meats |
| 17 | Alice Mutton | 39 |
| 7 | Produce | Dried fruit and bean curd |
| 8 | Seafood | Seaweed and fish |

As seen on the picture Master records were output (see numbers 1,3,4,5,7,8) i.e. all Master records. Moreover, they are output without Detail records. By default, the property is set to **false**.

## 5.14 Groups

One of the main tasks when rendering reports is grouping the data. Grouping can be used both for the logical separation of data rows and to make a report look better. Two bands are used to create grouped reports: the **GroupHeader** band and the **GroupFooter** band.

The **GroupHeader** band is output in the beginning of each group. The **GroupFooter** band is output in the end of each group. The picture below shows how a report with grouping may look:

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| | | | |
|---|---|---|---|
| **A** | | | |
| Alfreds Futterkiste | Obere Str. 57 | 030-0074321 | Sales Representative |
| Ana Trujillo Emparedados y helados | Avda. de la Constitución 2222 | (5) 555-4729 | Owner |
| Antonio Moreno Taquería | Mataderos 2312 | (5) 555-3932 | Owner |
| Around the Horn | 120 Hanover Sq. | (171) 555-7788 | Sales Representative |
| | | | Count: 4 |
| **B** | | | |
| Berglunds snabbköp | Berguvsvägen 8 | 0921-12 34 65 | Order Administrator |
| Blauer See Delikatessen | Forsterstr. 57 | 0621-08460 | Sales Representative |
| Blondesddsl père et fils | 24, place Kléber | 88.60.15.31 | Marketing Manager |
| Bólido Comidas preparadas | C/ Araquil, 67 | (91) 555 22 82 | Owner |
| Bon app' | 12, rue des Bouchers | 91.24.45.40 | Owner |
| Bottom-Dollar Markets | 23 Tsawassen Blvd. | (604) 555-4729 | Accounting Manager |
| B's Beverages | Fauntleroy Circus | (171) 555-1212 | Sales Representative |
| | | | Count: 7 |
| **C** | | | |
| Cactus Comidas para llevar | Cerrito 333 | (1) 135-5555 | Sales Agent |
| Centro comercial Moctezuma | Sierras de Granada 9993 | (5) 555-3392 | Marketing Manager |
| Chop-suey Chinese | Hauptstr. 29 | 0452-076545 | Owner |
| Comércio Mineiro | Av. dos Lusíadas, 23 | (11) 555-7647 | Sales Associate |
| Consolidated Holdings | Berkeley Gardens 12 Brewery | (171) 555-2282 | Sales Representative |
| | | | Count: 5 |

### 5.14.1 Grouping Conditions

To create a report with grouping it is necessary to define a condition by which the records can be grouped. This condition will be used to divide the data rows into suitable groups, and is set using the Condition property of the GroupHeaderBand.

**Important:** You MUST define a condition for every group, otherwise no grouping will take place in the rendered report.

For example, if you create a report that generates a list of companies the results could be grouped in alphabetical order by the first letter of the company name. Companies with names starting with A would be in the first group, companies with names starting with B would be in the second group and so on, as in the example below:

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The grouping condition you use can be any valid value. For example, if you wanted the companies to be grouped according to their location you could set the condition to group on a column from the database that contains the necessary location data.

## 5.14.2 GroupHeaderBand

The Group header is created using the **GroupHeader** band, the basic band for rendering reports that use grouping. It is impossible to generate grouped reports without using a **GroupHeader** band.

The **GroupHeader** band is output once at the beginning of each group and typically contains components that display header information such as a group name, date, grouping condition, etc.

To create groups within a report you must specify a grouping condition using the **GroupHeader** band designer or the **Condition** property of the band.

**Note:** The Header band is always output before the **GroupHeader** band, regardless of where bands may be positioned on a page in the designer.

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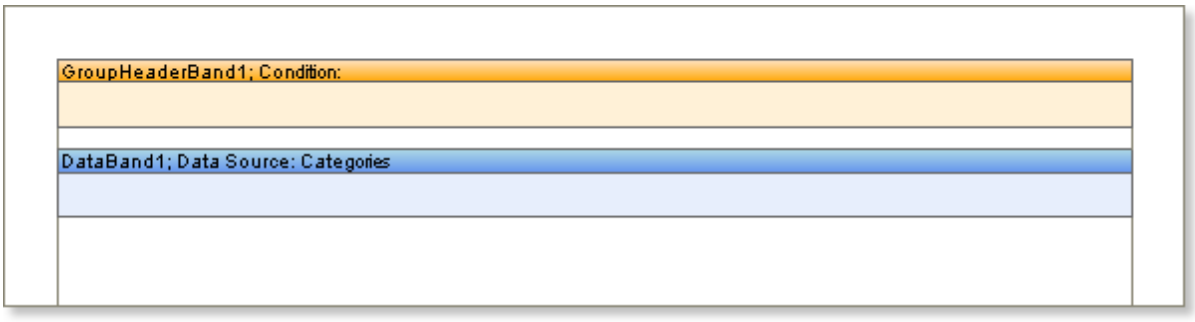


When rendering a report the report generator binds the group header to the specified Data band. The **GroupHeader** band is positioned on a page before the **Data** band that outputs data rows. The **GroupHeader** band always belongs to a specific **Data** band, usually the first **Data** band positioned under the **GroupHeader** band.

You must have a **Data** band to be able to render grouped reports because data rows are output using this band and because those data rows are the basis of the grouping in the report. In addition you can specify the sorting of rows in the **Data** band which will affect the order in which the groups are rendered.

**Important:** To render reports with grouping you MUST use a Data band.

### 5.14.3 GroupFooterBand

The **GroupFooter** band is commonly used to generate a group footer which is placed after the **Data** band bound to the group and typically contains components that output summary information relating to the group content. Every **GroupFooter** band belongs to the **GroupHeader** band associated with it, and will not be output if there is no associated **GroupHeader** band.

**Note:** The GroupFooter band is always output before the Footer band regardless of where bands may be positioned on a page.

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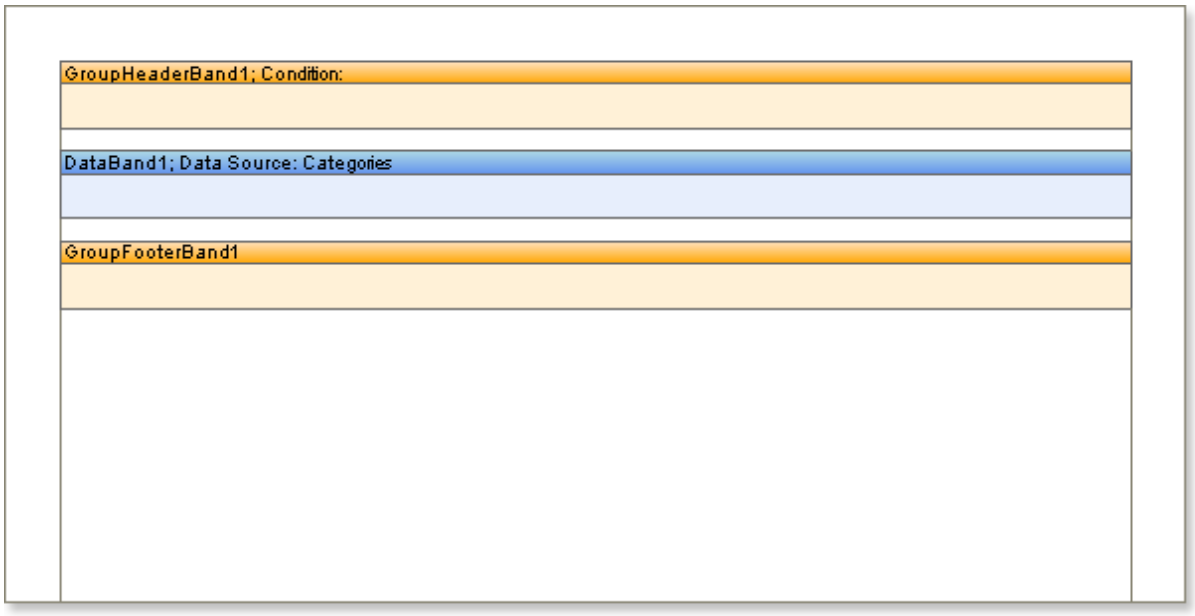


The **GroupFooter** band is used to output information specific to each group. For example, if you want to output the number of rows in a group, it is enough to put a text component on the **GroupFooter** band and assign it the following expression:

```
{Count()}
```

### 5.14.4 Data Sorting in Group

Please note that the report generator automatically sorts the rows of data before grouping. By default sorting by ascending order from A to Z is used. Sorting direction can be changed using the **SortDirection** property. This can take three values: **None**, **Ascending**, **Descending**.

- **None**. The data will be displayed in order they are put in the data source.
- **Ascending**. Data are displayed in alphabetical order from A to Z. The picture below shows an example of a report where sorting by ascending order:

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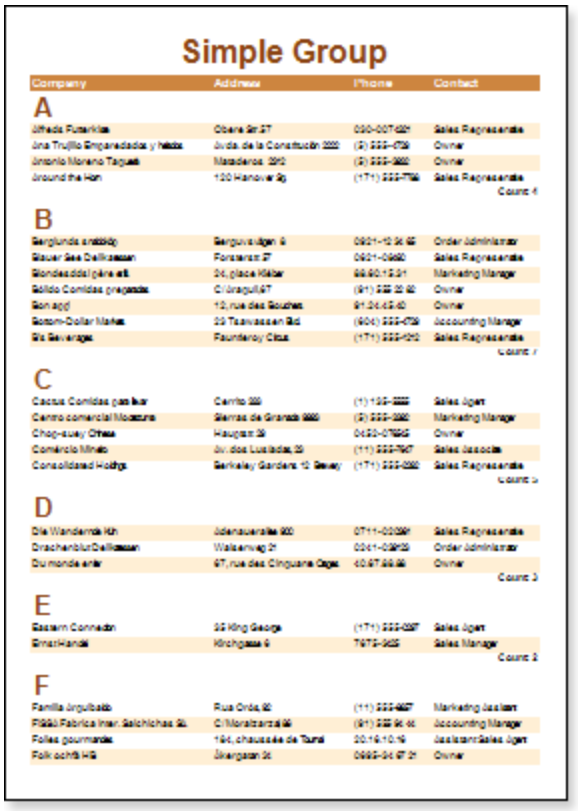


**Descending.** Data are displayed in alphabetical order from Z to A. The picture below shows an example of a report where sorting by descending order:

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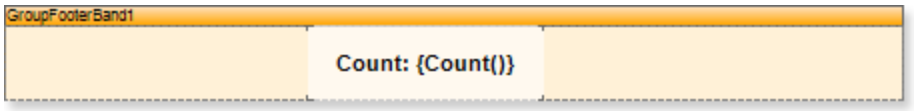
## 5.14.5 GroupFooter

It is enough to place a text component with an aggregate function in a **GroupFooter** to output footer by group. Also, the footer of a group may be placed in a **GroupHeaderBand**. For example, in order to count the number of rows in each group in a **Text** component the following expression can be used:

```
{Count()}
```

A component is placed in the **GroupFooter** band.




After rendering, it is possible to see that in the footer of each group calculation by number of rows is done.

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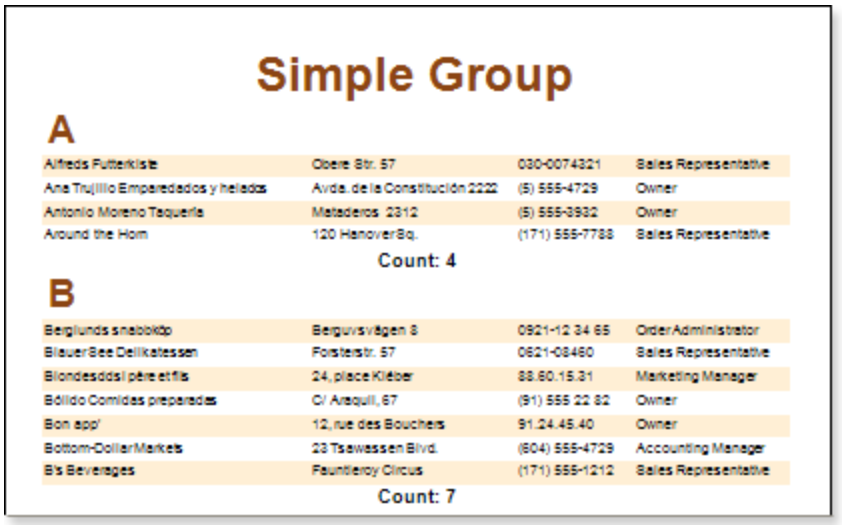
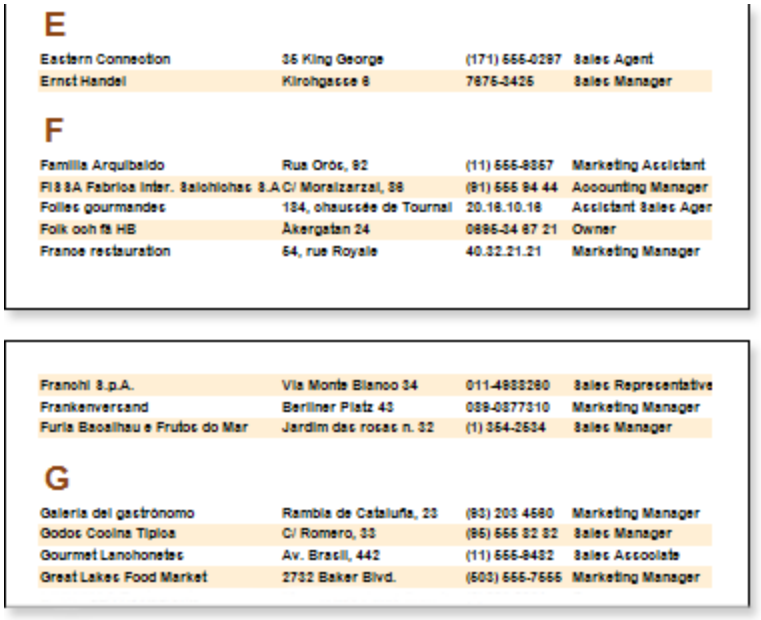

Simple Group
A
Alfreds Futterkiste Obere Str. 57 030-0074321 Sales Representative
Ana Trujillo Emparedados y helados Avda. de la Constitución 2222 (5) 555-4729 Owner
Antonio Moreno Taquería Mataderos 2312 (5) 555-3932 Owner
Around the Horn 120 Hanover Sq. (171) 555-7788 Sales Representative
Count: 4
B
Berglunds snabbköp Berguvsvägen 8 0921-12 34 65 Order Administrator
Blauer See Delikatessen Forsterstr. 57 0621-08460 Sales Representative
Blondesddsl père et fils 24, place Kléber 88.60.15.31 Marketing Manager
Bólido Comidas preparadas C/ Araquil, 67 (91) 555 22 82 Owner
Bon app' 12, rue des Bouchers 91.24.45.40 Owner
Bottom-Dollar Markets 23 Tsawassen Blvd. (604) 555-4729 Accounting Manager
B's Beverages Fauntleroy Circus (171) 555-1212 Sales Representative
Count: 7

## 5.14.6 KeepGroupTogether Property

When rendering a report with grouping, a group may not fit to one page. I.e. several lines of group will be output on one page and other part on the next page.


E
Eastern Connection 35 King George (171) 555-0297 Sales Agent
Ernst Handel Kirchgasse 6 7675-3425 Sales Manager
F
Familia Arquibaldo Rua Orós, 92 (11) 555-9857 Marketing Assistant
FISSA Fabrica Inter. Salchichas S.A. C/ Moralzarzal, 86 (91) 555 94 44 Accounting Manager
Folies gourmandes 184, chaussée de Tournai 20.16.10.16 Assistant Sales Agent
Folk och fä HB Åkergatan 24 0695-34 67 21 Owner
France restauration 54, rue Royale 40.32.21.21 Marketing Manager
Franchi S.p.A. Via Monte Bianco 34 011-4988260 Sales Representative
Frankenversand Berliner Platz 43 089-0877310 Marketing Manager
Furia Bacalhau e Frutos do Mar Jardim das rosas n. 32 (1) 354-2534 Sales Manager
G
Galería del gastrónomo Rambla de Cataluña, 23 (93) 203 4560 Marketing Manager
Godos Cocina Típica C/ Romero, 33 (95) 555 82 82 Sales Manager
Gourmet Lanchonetes Av. Brasil, 442 (11) 555-9482 Sales Associate
Great Lakes Food Market 2732 Baker Blvd. (503) 555-7555 Marketing Manager

This can be avoided using the **KeepGroupTogether** property of the **GroupHeaderBand**. If to set this property to **true**, then, if a group cannot be placed on one page, the whole group is moved to the next page. If it is impossible to print a group on the next page then the group will be forcibly broken and output on multiple pages.

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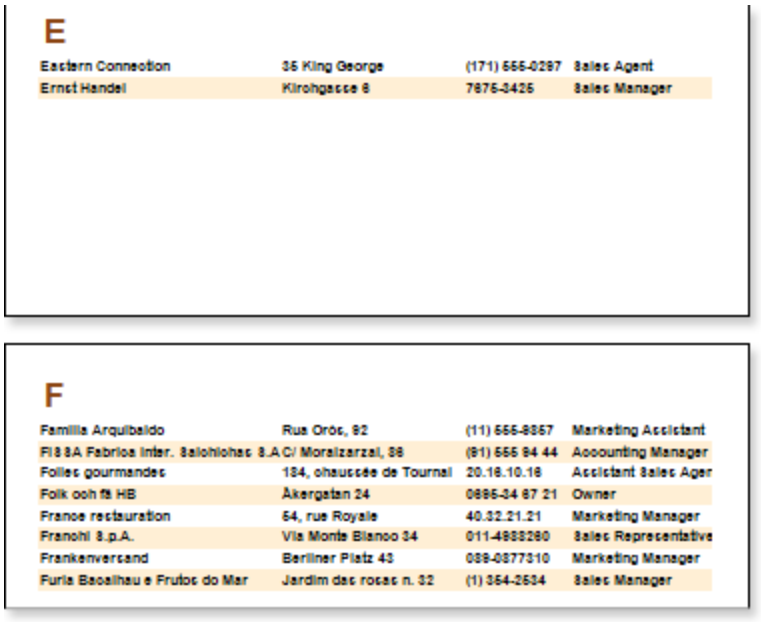


E

| | | | |
|---|---|---|---|
| Eastern Connection | 35 King George | (171) 555-0297 | Sales Agent |
| Ernst Handel | Kirchgasse 6 | 7675-3425 | Sales Manager |

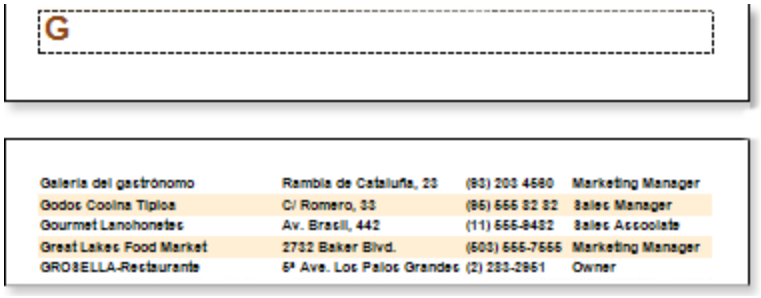
F

| | | | |
|---|---|---|---|
| Familia Arquibaldo | Rua Orós, 92 | (11) 555-9857 | Marketing Assistant |
| FISSA Fabrica Inter. Salchichas S.A. | C/ Moralzarzal, 86 | (91) 555 94 44 | Accounting Manager |
| Folies gourmandes | 184, chaussée de Tournai | 20.16.10.16 | Assistant Sales Ager |
| Folk och fä HB | Åkergatan 24 | 0695-34 67 21 | Owner |
| France restauration | 54, rue Royale | 40.32.21.21 | Marketing Manager |
| Franchi S.p.A. | Via Monte Bianco 34 | 011-4988260 | Sales Representative |
| Frankenversand | Berliner Platz 43 | 089-0877310 | Marketing Manager |
| Furia Bacalhau e Frutos do Mar | Jardim das rosas n. 32 | (1) 354-2534 | Sales Manager |

Work with this property may lead to empty space on page, if groups contain a large number of rows.

## 5.14.7 KeepGroupHeaderTogether Property

The **GroupHeaderBand** has the **KeepHeaderGroupTogether** property. If the property is set to **false**, then the group header can be displayed on one page, and data of a group to another page. So data will be separated from its header. The picture below shows that the header is on one page, and the data were moved to another.



G

| | | | |
|---|---|---|---|
| Galería del gastrónomo | Rambla de Cataluña, 23 | (93) 203 4560 | Marketing Manager |
| Godos Cocina Típica | C/ Romero, 33 | (95) 555 82 82 | Sales Manager |
| Gourmet Lanchonetes | Av. Brasil, 442 | (11) 555-9482 | Sales Associate |
| Great Lakes Food Market | 2732 Baker Blvd. | (503) 555-7555 | Marketing Manager |
| GROSELLA-Restaurante | 5ª Ave. Los Palos Grandes | (2) 283-2951 | Owner |

If the property is set to **true**, then the group header will be displayed with at least one row of a group. The picture below shows how a group will be output if the **KeepHeaderGroupTogether** property is set to true.

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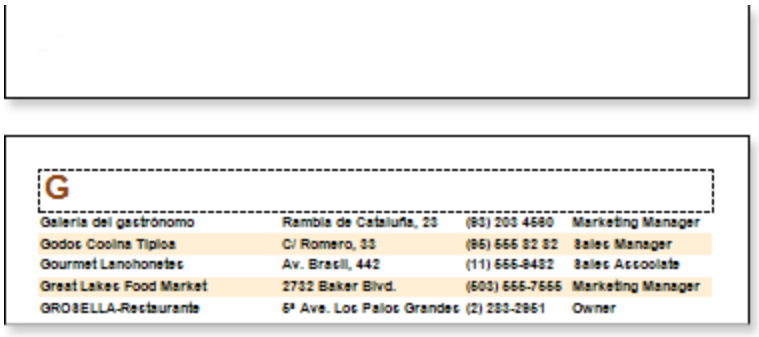
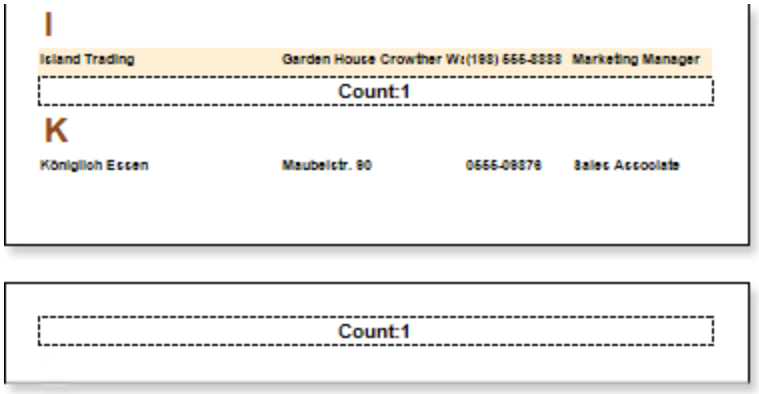

G
Galería del gastrónomo Rambla de Cataluña, 23 (93) 203 4560 Marketing Manager
Godos Cocina Típica C/ Romero, 33 (95) 555 82 82 Sales Manager
Gourmet Lanchonetes Av. Brasil, 442 (11) 555-8482 Sales Associate
Great Lakes Food Market 2732 Baker Blvd. (503) 555-7555 Marketing Manager
GROSELLA-Restaurante 5ª Ave. Los Palos Grandes (2) 283-2951 Owner

By default the **KeepHeaderGroupTogether** property is set to **true**.

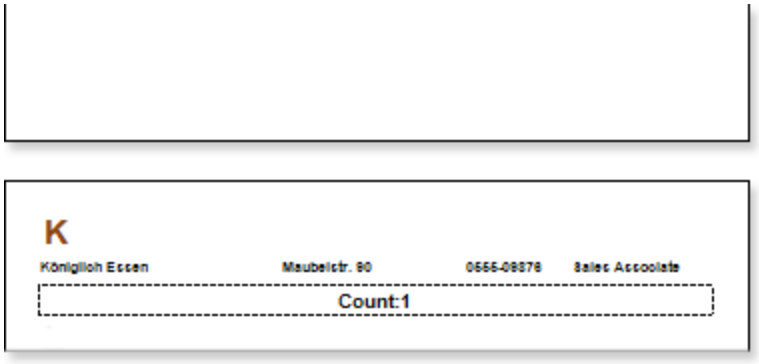
## 5.14.8 KeepGroupFooterTogether Property

The **GroupFooterBand** has the **KeepGroupFooterTogether** property. If the property is set to **false**, then the data can be placed on one page and the footer of a group on another, and data of groups will be separated from its footer:


I
Island Trading Garden House Crowther W (198) 555-8888 Marketing Manager
Count:1
K
Königlich Essen Maubelstr. 90 0555-09876 Sales Associate




If the property is set to **true**, then at least one line of data will be together with the footer of a group:

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By default this property is set to **true**.

## 5.14.9 Events and GroupHeaderBand

Like the **Data** band, the **Group Header** band has three specific events:

- **BeginRenderEvent**,
- **EndRenderEvent** and
- **RenderingEvent**.

**BeginRenderEvent**
The **BeginRenderEvent** is called before a group is rendered, in other words whenever a new group is output. This event can be used for the initialization of data or variables, or for calling certain actions.

**EndRenderEvent**
The **EndRenderEvent** is called after the group is output. Usually in the handler for this event data processing and the calculation of totals is done.

**RenderingEvent**
The **RenderingEvent** is called when the engine is rendering one data row from a group.

## 5.14.10 Group Without GroupHeader

In grouped reports is is usual to display both a group header and a group footer. However, what if you need to output only group footers without group headers?

When creating grouped reports you must use a **GroupHeader** band, but if you do not want it to display it can be hidden by setting the height of the **GroupHeader** band to **0** which will cause the report to be rendered successfully but the **GroupHeader** band will not appear in the output.

## 5.14.11 Nested Groups

When rendering grouped reports you may use more than one grouping to achieve the desired output, known as 'nesting'. For example, you might group Customers by location and then sub group them

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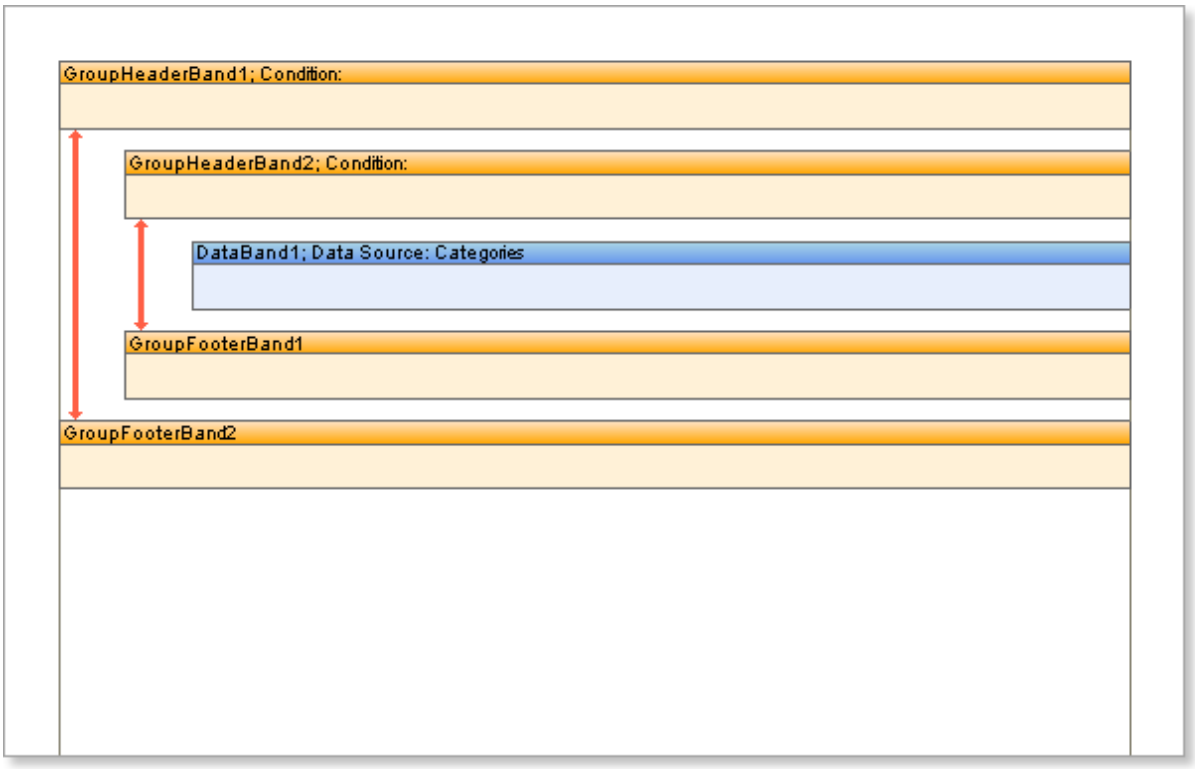
alphabetically. To achieve this style of report you should put the required number of **GroupHeader** bands before the **DataBand** and ideally the same number of **GroupFooter** bands immediately after it:




Although it is possible to leave out unwanted **GroupFooters** it is recommended that you always place equal numbers of **GroupHeader** and **GroupFooter** bands on a report to avoid unexpected results. If the number of **GroupFooter** bands is greater than the number of **GroupHeader** bands then the outer ones will be used and the inner bands ignored. If the number of **GroupFooter** bands is less than the number of **GroupHeader** bands, then the **GroupHeader** bands placed closer to the **Data** band will be output without footers.

**Important:** It is recommended to have equal number of GroupHeader and GroupFooter bands in a report.

In each **GroupHeader** band you must specify the grouping criteria. When rendering the report the **GroupHeader** bands are processed in the in which they appear on a page working from the top down i.e. the topmost band is processed first, then the one that is placed directly underneath it and so on. When placing **GroupFooter** bands on a report page it is important remember that the last **GroupFooter** band is always associated with the first **GroupHeader** band.

## 5.14.12 Groups Without GroupFooter

In grouped reports is is usual to display both a group header and a group footer. However, what if you need to output only group headers without group footers?

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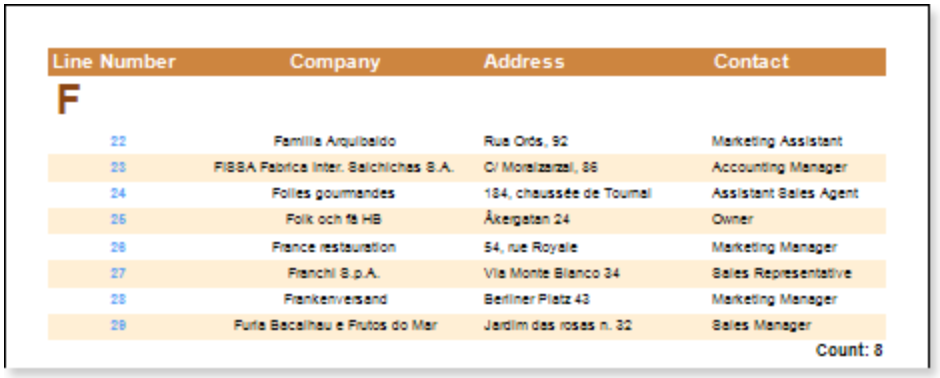
It is possible to simply not include a **GroupFooter**, but this is **NOT** recommended as it can lead to unexpected results particularly if you are working with **Nested** groups. It is therefore recommended that you **ALWAYS** use **GroupHeaders** and **GroupFooters** in pairs.

**Important:** To render reports with grouping you should always use GroupHeaders and GroupFooters in pairs to avoid the possibility of unexpected results.

If you do not want the **GroupFooter** to be displayed it can be hidden by setting its height to **0** which will cause the report to be rendered successfully but the band will not appear in the output.

## 5.14.13 LineThrough System Variable

One of the tasks of lines numbering is through numbering in a group. The numbering starts with number 1. Through numbering of lines in a group is defined by the **LineThrough** system variable.



| Line Number | Company | Address | Contact |
|---|---|---|---|
| F | | | |
| 22 | Familia Arquibaldo | Rua Orós, 92 | Marketing Assistant |
| 23 | FISSA Fabrica Inter. Salchichas S.A. | C/ Moralzarzal, 86 | Accounting Manager |
| 24 | Folies gourmandes | 184, chaussée de Tournai | Assistant Sales Agent |
| 25 | Folk och fä HB | Åkergatan 24 | Owner |
| 26 | France restauration | 54, rue Royale | Marketing Manager |
| 27 | Franchi S.p.A. | Via Monte Bianco 34 | Sales Representative |
| 28 | Frankenversand | Berliner Platz 43 | Marketing Manager |
| 29 | Furia Bacalhau e Frutos do Mar | Jardim das rosas n. 32 | Sales Manager |

Count: 8

In other words, when using the **LineThrough** system variable, all rows in the rendered list have an index number and start of printing a new group header does not affect the numbering (numbering does not reset to its initial state equal to 1).

## 5.14.14 Numbering Rows in Group

If you wish to display line numbers within a group you should use the **Line** system variable. The reference to this variable should be specified in the expression assigned to a text component placed on the group Data band.

For example, put a text component on the **Data** band and write the following expression in it:

```
{Line}
```

After the report has been rendered there will be a numbered list of rows in each group, the numbers starting 1.

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In each new group within a report the numbering starts all over again at 1. If you want the numbers to continue from one group into the next group (known as 'through-numbering') you should use the **LineThrough** system variable instead. For example, write the following expression in the text component:

```
{LineThrough()}
```

As a result the row numbers in the subsequent group will continue from the numbers in the preceding group.

## 5.14.15 GroupLine System Variable

Numbering of groups in the report generator is defined by the **GroupLine** system variable. Group numbering starts with 1. The picture below shows an example of a report with numbering of groups:

A text component with the GroupLine system variable can be placed in the GroupHeaderBand band, and in the GroupFooterBand band.

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### 5.14.16 Combining Groups and Master-Detail Reports

In **Master-Detail** reports it is possible to group both **Master** and **Detail** components. When creating a report, the report generator binds a group header and the **Data** band. The **GroupHeader** is placed on a page above the **Data** band, which outputs data rows. The **GroupHeader** band always refers to a specific **Data** band. Typically, the band is the first **Data** band, which is placed below the **GroupHeader** band. To render a report with the grouping, the **Data** band is required. The **GroupFooter** band is placed below the **Data** band. It is meant that very **Data** band, with what the **GroupHeader** band is bound. Each **GroupFooter** band, refers to a certain **GroupHeader** band. The **GroupFooter** band will not be output if there is no the **GroupHeader** band.

The picture above shows a combination of **GroupHeaderBand** and **GroupFooterBand** bands with **Data bands** in a **Master-Detail** report.

## 5.15 Page Bands

Page bands are printed at the top or bottom of a page. Usually they are used to output things like page numbering, copyright notices, company address and contact information etc. Stimulsoft Reports supports three types of page bands: **PageHeader**, **PageFooter**, and **EmptyData**.

### 5.15.1 PageHeader Band

The PageHeader band is used to output information such as page numbers, dates, and company information at the top of a page. The PageHeader band is output at the top of every page of the report. An unlimited number of PageHeader bands can be placed on a page.

**Note:** The number of PageHeader bands that can be placed on a page is effectively unlimited other

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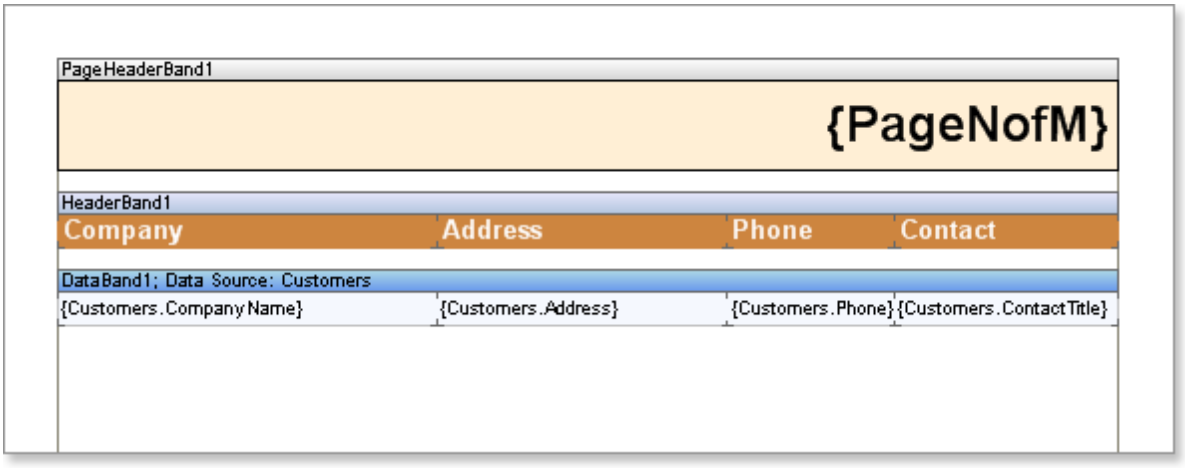
than by available space.

**Example**
Create a new report and drop three bands on a page: a PageHeader band for the current page number and number of pages in the report, a Data band to output data and a HeaderBand band to output data column headers. Drop a text component on the PageHeader band and enter the following expression in the Text Property Editor:

```
{PageNofM}
```

**Note:** If you prefer instead of typing the expression it is possible to select it from the System Variables in the Expression Editor.

The result should look something like this:




Now run the report, and you will see that the page number is printed at the top of each page.

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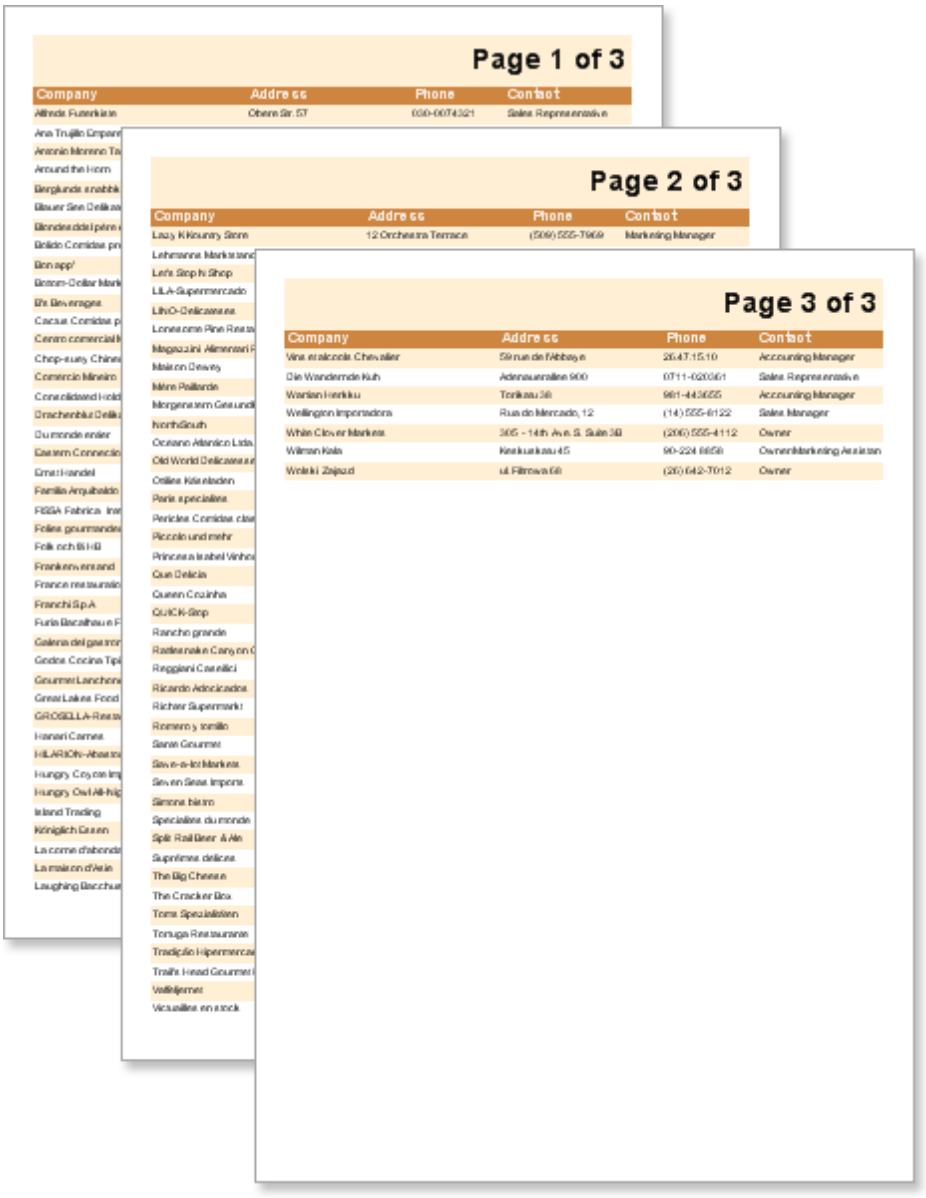



## 5.15.2 PageFooter Band

The PageFooter band is used to output information such as page numbers, dates, and company information at the bottom of a page. The PageFooter band is output at the bottom of every page of the report. An unlimited number of PageFooter bands can be placed on a page.

**Note:** The number of PageFooter bands that can be placed on a page is effectively unlimited other than by available space.

**Example**

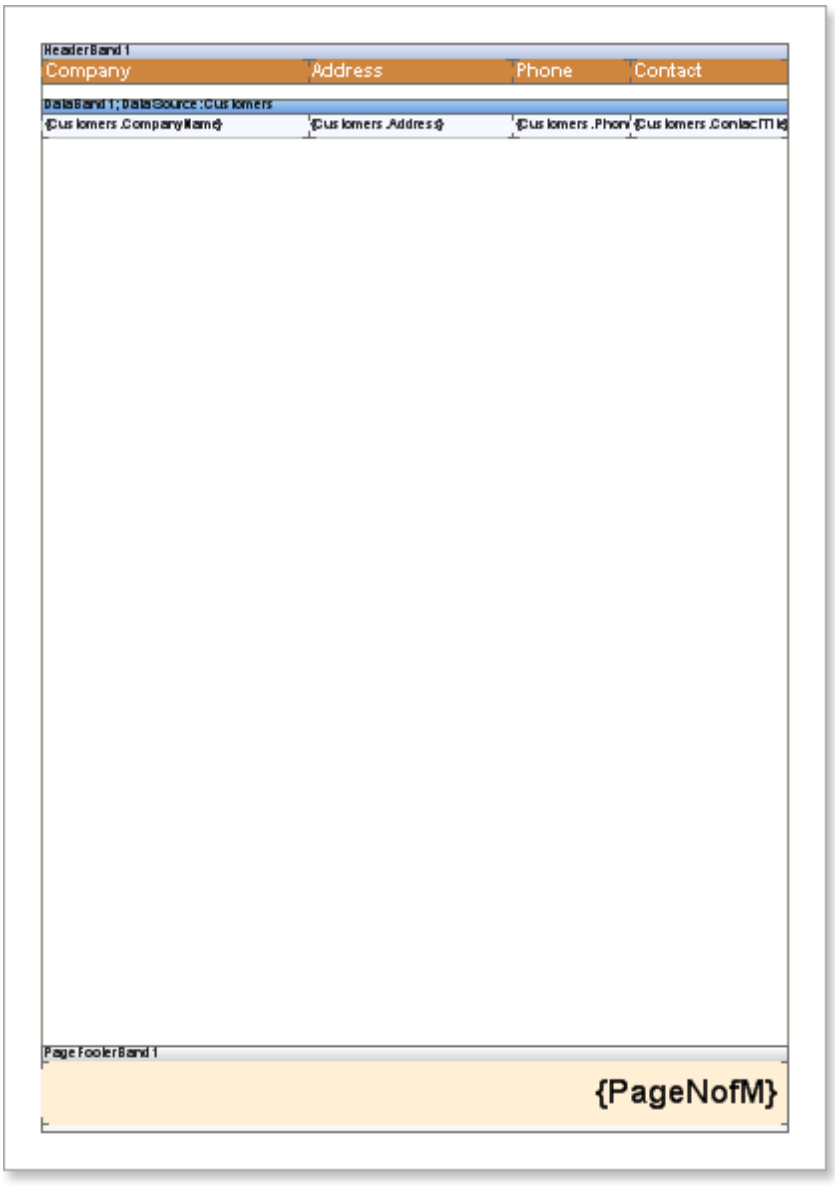
Create a new report and drop three bands on a page: a PageFooter band for the current page number and number of pages in the report, a Data band to output data and a HeaderBand band to

output data column headers. Drop a text component on the PageFooter band and enter the following expression in the Text Property Editor:

```
{PageNofM}
```

**Note:** If you prefer instead of typing the expression it is possible to select it from the System Variables in the Expression Editor.

The result should look something like this:




Now run the report, and you will see that the page number is printed at the bottom of each page.

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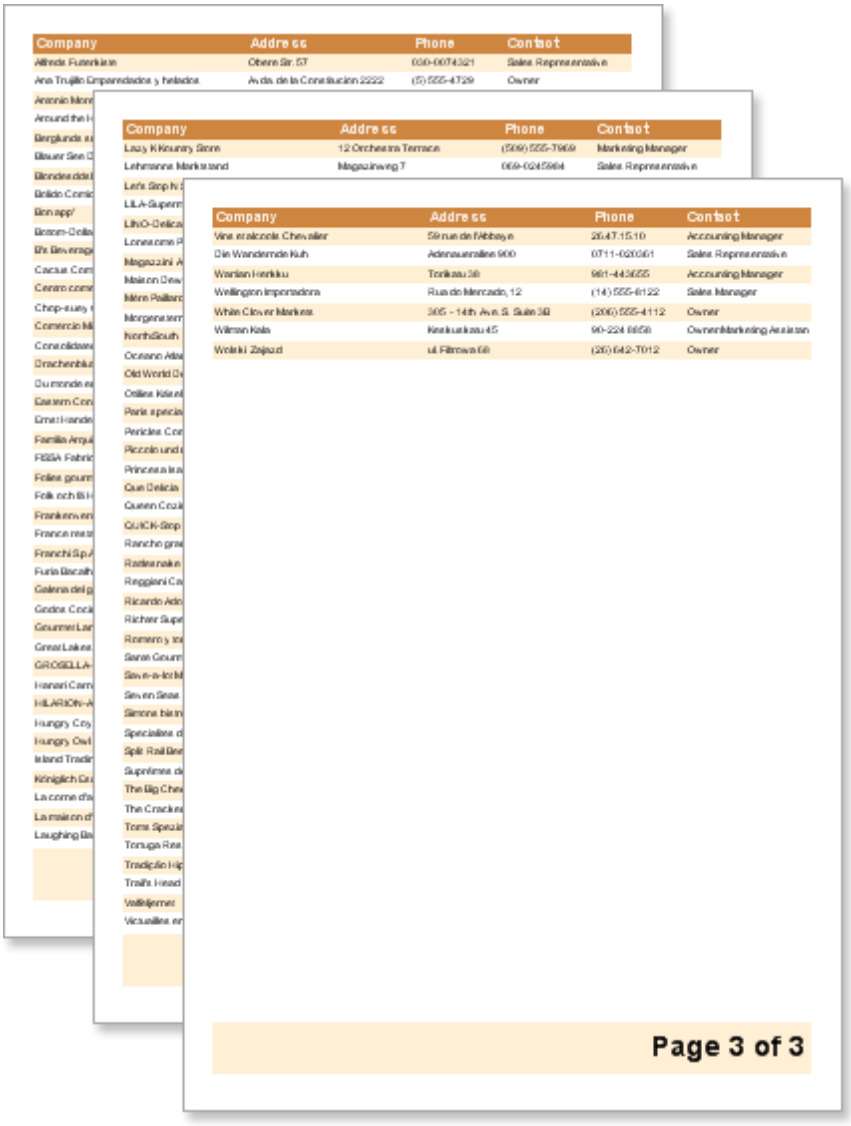


## 5.15.3 PrintOnEvenOddPages Property

The **PrintOnEvenOddPages** property is used to print headers and footers on even/odd pages, for **PageHeaderBands** and **PageFooterBands**.

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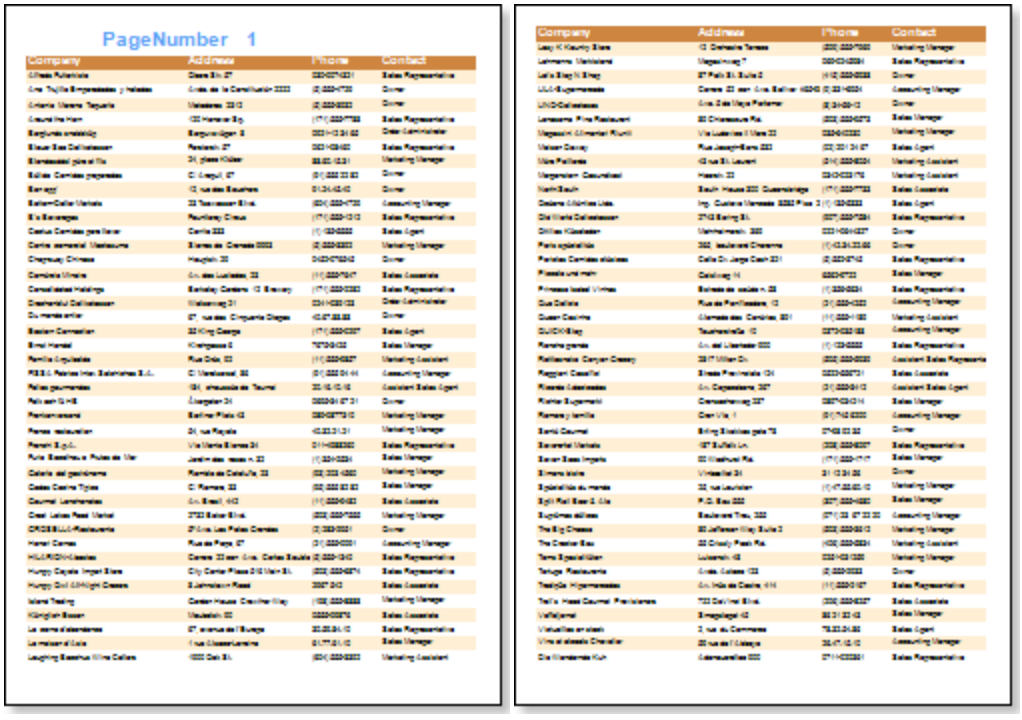
The picture above shows a sample of a report with the **PrintOnEvenOddPages** property of the **PageHeaderBand** set to **EvenPage**.




The picture above shows a sample of a report with the **PrintOnEvenOddPages** property of the **PageHeaderBand** set to **OddPage**.

Three values are available for this property:

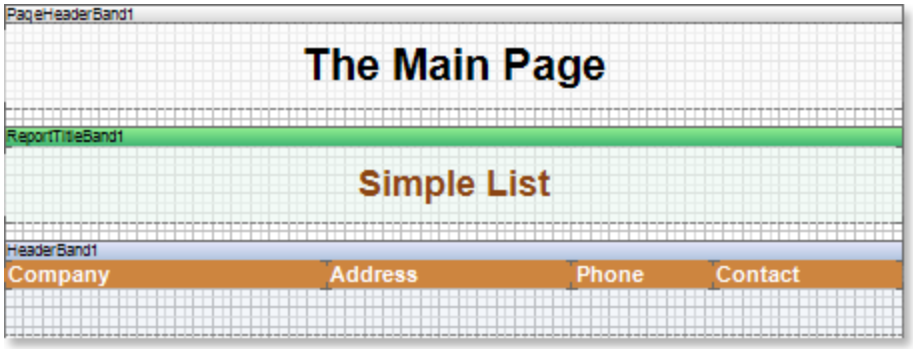
- **Ignore**. Bands are printed on all pages;
- **PrintOnEvenPages**. Bands are printed on even pages;
- **PrintOnOddPage**. Bands are printed on odd pages.

## 5.16 Report Bands

There are two report bands in Stimulsoft Reports: the **ReportTitleBand** and the **ReportsSummaryBand**. The ReportTitleBand is output in the beginning of a report and the ReportSummaryBand is output in the end of a report. The number of **ReportTitleBand** bands and **ReportSummaryBand** bands on a page is unlimited. The **ReportTitleBand** band and the **ReportSummaryBand** band can be output more than one time and can be used on each page.

### 5.16.1 ReportTitleBand

One of the ways to display the report header is the way of using the **ReportTitleBand** band. The report header will be output only once in the beginning of a report. The **ReportTitleBand** band is placed after the **PageHeaderBand** band, **and** before the **HeaderBand** band. The number of **ReportTitleBand** bands on a page is unlimited.




On the picture above shows how bands can be placed on a page. Here one can see top-down the **PageHeaderBand** band, the **ReportTitleBand** band, and the **HeaderBand** band.

### 5.16.2 ReportSummaryBand

A report summary can be output using the **ReportSummaryBand** band. The number of **ReportSummaryBand** bands placed in a report is unlimited. This band is output on each page as many times as there are pages.

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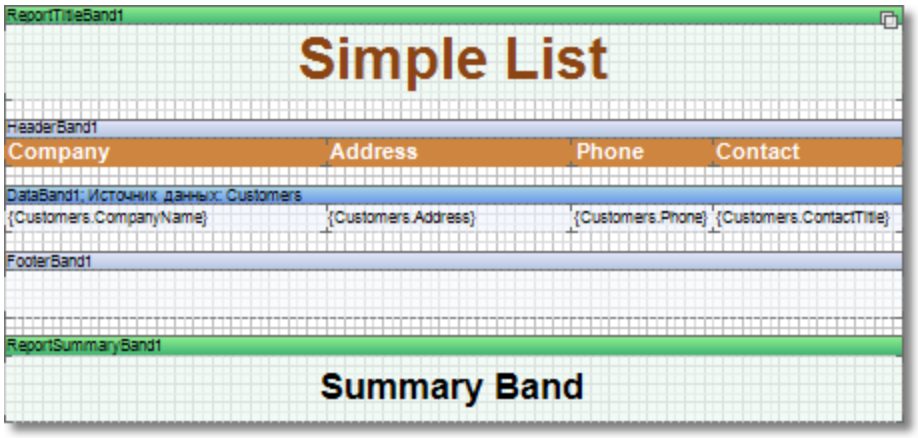


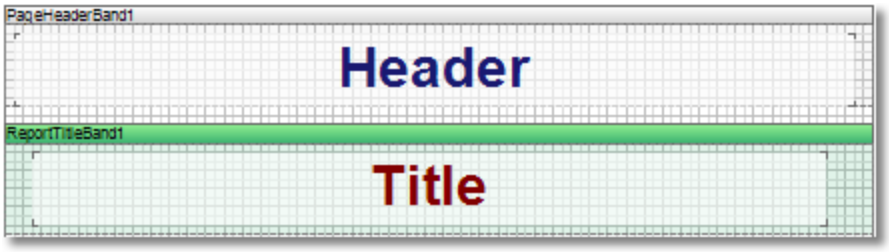

This band is used to output report summary.

On the picture above shows how bands can be placed on a page. Here one can see the top-down order of bands:

- The **ReportTitleBand** band;
- The **HeaderBand)** band;
- The **DataBand)** band;
- The **FooterBand)** band;
- The **ReportSummaryBand)** band.

### 5.16.3 ReportTitleBand Property

By default, the **PageHeaderBand** band is placed above the **ReportTitleBand** band:




but it is also possible to output the **ReportTitleBand** band before the **PageHeaderBand** band:

By default this property is set to **false**. Set the **TitleBeforeHeader** property to **true** and the

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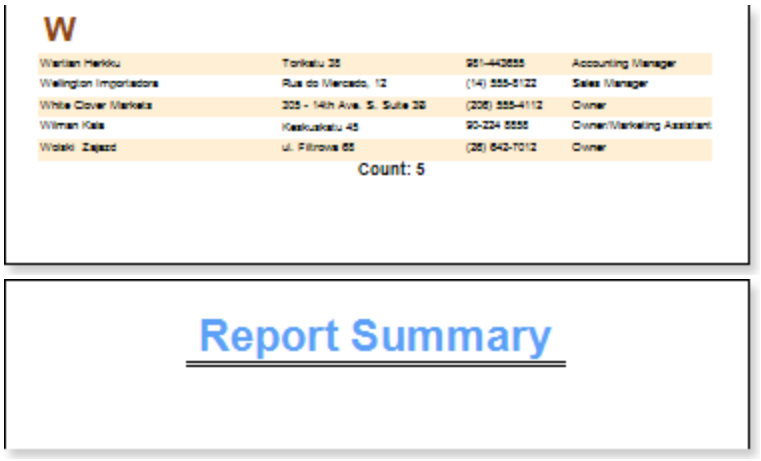
**ReportTitleBand** band will be output before the **PageHeaderBand** band.

## 5.16.4 KeepReportSummaryTogether Property

When printing, sometimes the last data row will be on one page and the report summary on the next one. The report will not look good.




To avoid such unpleasant incidents the **ReportSummaryBand** has the **KeepReportSummaryTogether** property.
If the **KeepReportSummaryTogether** property is set to **true**, then minimum one data row will be printed with the report summary. Thus it is necessary to take into account that after the data row is transferred free space may remain on a fist page. Therefore, one should take this into account when working with this property.

The default value of the property is set to **true**.

## 5.16.5 Print At Bottom Property

Suppose there is a report in which data covers only one-third of the last page. The report summary is displayed after the data.

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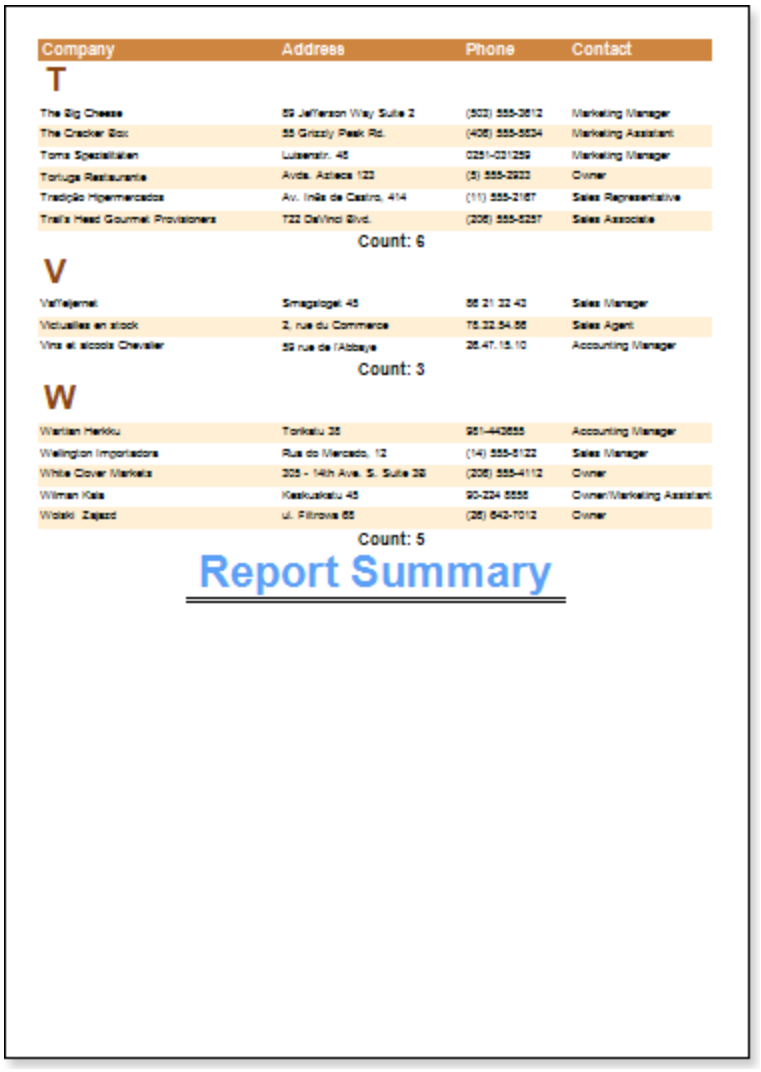


But it is necessary that the report summary should be placed on the bottom of the page. The **ReportSummaryBand** has the **PrintAtBottom** property. By default, the property is set to **false**. If the **PrintAtBottom** property is set to **true**, then summary will be output on the bottom of the page.

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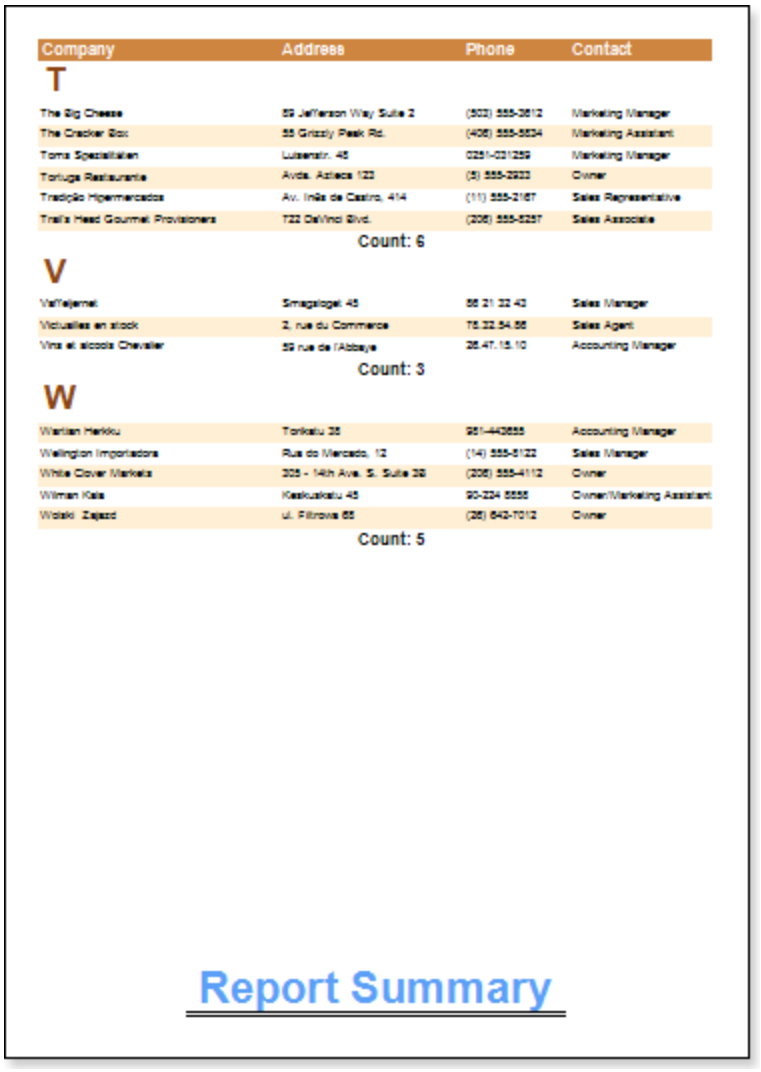


## 5.16.6 Print If Empty Property

There is a property in a report generator that allows you to display a report header and/or report footer when the DataBand is not on a page or data of a report. This is the **Print If Empty** property, which have both the **ReportTitleBand**, and the **ReportSummaryBand**.

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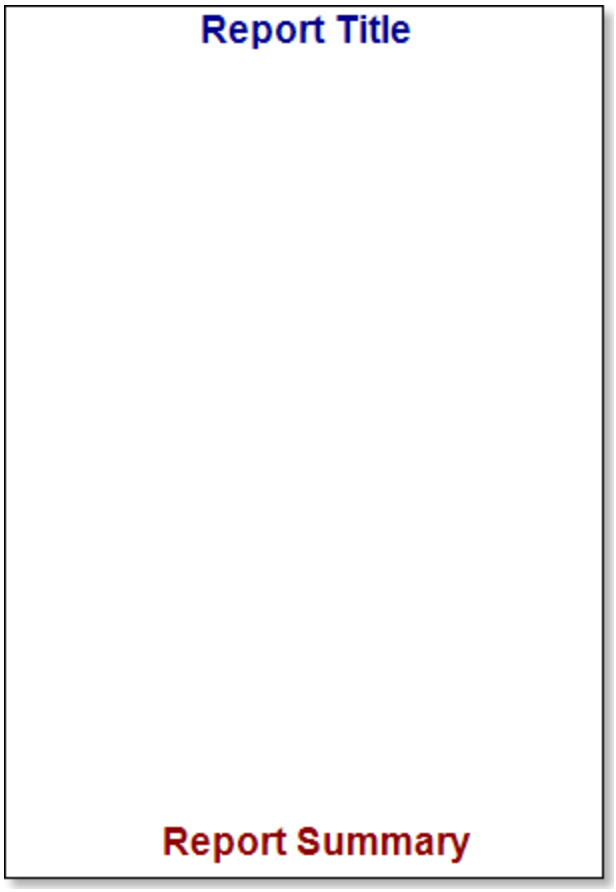


By default, this property is enabled. If you disable this property for two bands, you get a blank page.

**Note:** that in this example, in addition to the Print If Empty property, the Print At Bottom property of the ReportSummaryBand band is also set.

## 5.17 Columns

Stimulsoft Reports has the ability to group data in columns. Data output in columns can improve the appearance of a report, and also allows more efficient use of page space. Two types of columns are supported: columns on a Page and columns on a Data band. Columns on a Data band support two modes: Across Then Down and Down Then Across. Stimulsoft Reports has a full set of tools to allow reports to be rendered with columns.

### 5.17.1 Columns on Page

It is possible to output data on a page in columns using the **Columns** property. By default this property is set to 0. Setting the value to 2 or more will cause the data to be output in columns. You will also need to set the **ColumnWidth** and **ColumnGaps** properties.

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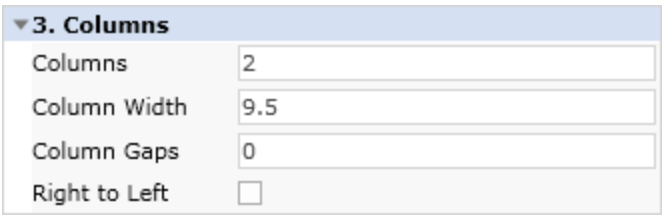
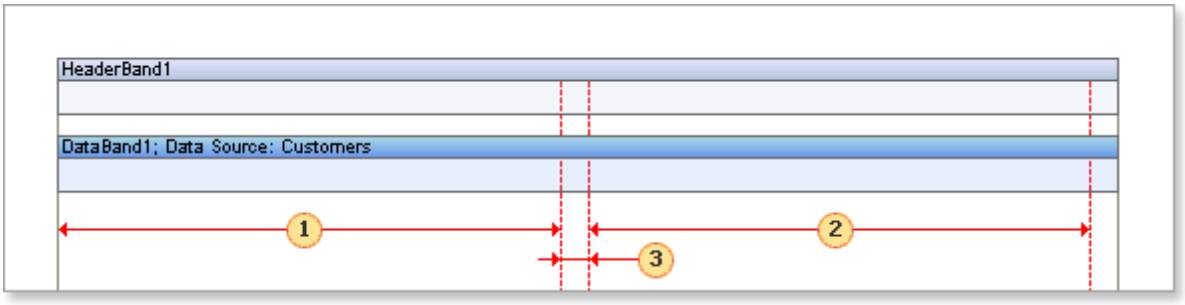



The ColumnWidth property is used to set the column width and is applied to all columns which will be output on the page. The ColumnGaps property is used to set the space between the columns.

**Important:** Three page properties have to be set to output columns on a page. The Columns property is used to define the number of columns, the ColumnWidth property is used to set the width of each column, and the ColumnGaps property is used to set the space between the columns.




| | |
|---|---|
| 1 | The first column width |
| 2 | The second column width |
| 3 | The space between columns |

In columnar output mode the page is separated vertically and the report is logically output in the first column, then in the second etc.

**Note:** The number of columns on a page is unlimited.

**Example**
Suppose that you need a report with two columns. Set the **Columns** property to 2 (this means that two columns will be output on each page). Set the **ColumnWidth** to a suitable width for one column and in the **ColumnGaps** property set the space between columns. Put two bands on a page: a Header band and a Data band. The data headers will be output on the Header band and data itself will be output on the Data band.

**Note:** Column borders are indicated by the red line.

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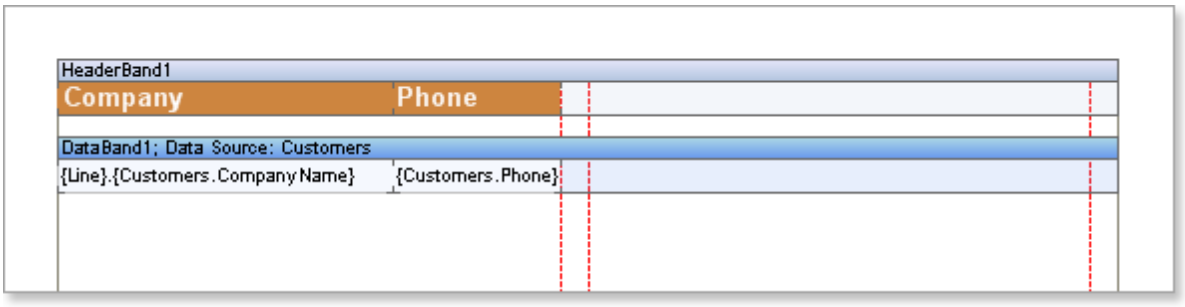


Run the report. There are two columns on each page and all lines are numbered.

| Company | Phone |
|---|---|
| 1.Alfreds Futterkiste | 030-0074321 |
| 2.Ana Trujillo Emparedados y helados | (5) 555-4729 |
| 3.Antonio Moreno Taquería | (5) 555-3932 |
| 4.Around the Horn | (171) 555-7788 |
| 5.Berglunds snabbköp | 0921-12 34 65 |
| 6.Blauer See Delikatessen | 0621-08460 |
| 7.Blondesddsl père et fils | 88.60.15.31 |
| 8.Bólido Comidas preparadas | (91) 555 22 82 |
| 9.Bon app' | 91.24.45.40 |
| 10.Bottom-Dollar Markets | (604) 555-4729 |
| 11.B's Beverages | (171) 555-1212 |
| 12.Cactus Comidas para llevar | (1) 135-5555 |
| 13.Centro comercial Moctezuma | (5) 555-3392 |
| 14.Chop-suey Chinese | 0452-076545 |
| 15.Comércio Mineiro | (11) 555-7647 |
| 16.Consolidated Holdings | (171) 555-2282 |
| 17.Die Wandernde Kuh | 0711-020361 |
| 18.Drachenblut Delikatessen | 0241-039123 |
| 19.Du monde entier | 40.67.88.88 |
| 20.Eastern Connection | (171) 555-0297 |

| Company | Phone |
|---|---|
| 46.Let's Stop N Shop | (415) 555-5938 |
| 47.LILA-Supermercado | (9) 331-6954 |
| 48.LINO-Delicateses | (8) 34-56-12 |
| 49.Lonesome Pine Restaurant | (503) 555-9573 |
| 50.Magazzini Alimentari Riuniti | 035-640230 |
| 51.Maison Dewey | (02) 201 24 67 |
| 52.Mère Paillarde | (514) 555-8054 |
| 53.Morgenstern Gesundkost | 0342-023176 |
| 54.North/South | (171) 555-7733 |
| 55.Océano Atlántico Ltda. | (1) 135-5333 |
| 56.Old World Delicatessen | (907) 555-7584 |
| 57.Ottilies Käseladen | 0221-0644327 |
| 58.Paris spécialités | (1) 42.34.22.66 |
| 59.Pericles Comidas clásicas | (5) 552-3745 |
| 60.Piccolo und mehr | 6562-9722 |
| 61.Princesa Isabel Vinhos | (1) 356-5634 |
| 62.Que Delícia | (21) 555-4252 |
| 63.Queen Cozinha | (11) 555-1189 |
| 64.QUICK-Stop | 0372-035188 |
| 65.Rancho grande | (1) 123-5555 |

The columns are generated automatically - Stimulsoft Reports prints bands until there is no free space left on a page. Then, instead of creating a new page, a new column is added and data is output in a new column until again there is no free space. This is repeated until the required number of columns has been generated, at which point if there is still data to be output a new page is created and the process starts all over again.

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## 5.17.2 Columns on Data Band

Columns have one disadvantage, which is that there may be situations where the available data is sufficient to fill only one column leaving other columns empty and that part of a page will stay unused. To get around this problem it is possible to output columns using the Data band.

The **Columns** property of the Data band is used to enable the output of data in columns. Set this property to 2 or more to cause the data to be output in a columnar format.

It will also be necessary to set the **ColumnWidth** and **ColumnGaps** properties. The **ColumnWidth** property is used to set the column width and is applied to all columns on the Data band. The **ColumnGaps** property is used to set the space between two columns.

**Note:** Three data band properties have to be set to output columns on a band. The Columns property is used to define the number of columns, the ColumnWidth property is used to set the width of each column, and the ColumnGaps property is used to set the space between the columns.

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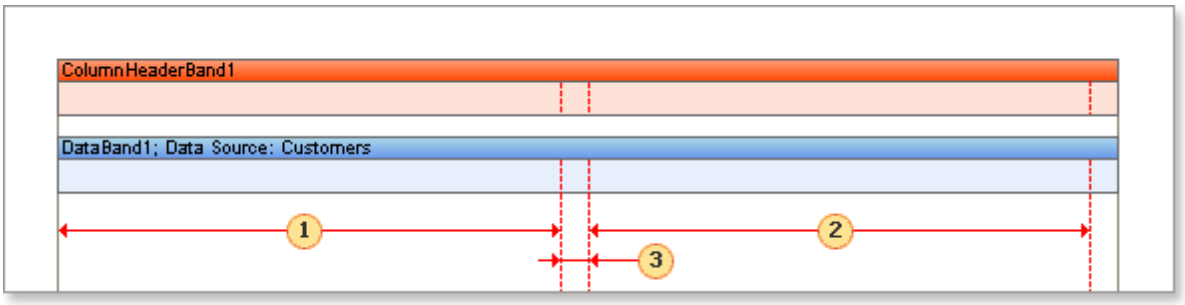


1 The first column width
2 The second column width
3 The space between columns

**Note:** The number of columns on a Data band is unlimited.

There are two output modes for columns on the Data band: **AcrossThenDown** and **DownThenAcross**.

#### 5.17.2.1 AcrossThenDown Mode

This mode is used to output strings logically from left to right on the Data band. Strings are output one string to one column. When all columns on the Data band have been generated a new Data band will be formed and again all strings in columns will be output. The data will take up as much space in the report as is necessary.

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**Note:** The number of columns on a Data band is unlimited.

**Example**

In this example we will build a report with three columns on the Data band. Put two bands on a page: A **ColumnHeader** band and a **Data** band. On the **Data** band set the Column property to 3 (this will create three columns). Set the column width using the **ColumnWidth** property, and the space between columns using the **ColumnGaps** property. Set the **ColumnDirection** property of the Data band to **AcrossThenDown** mode.

Place text components on the **ColumnHeader** band to represent the Column titles.

**Note:** Column edges are indicated with red vertical lines. All components which are placed on the first column will be automatically repeated in the other columns.

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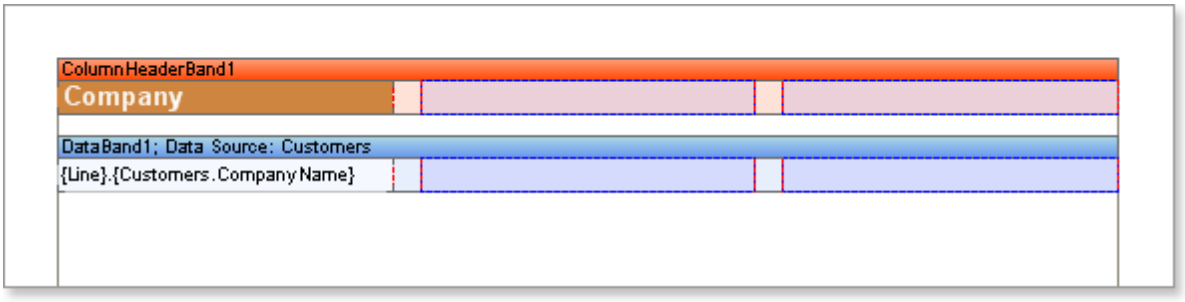


Now run the report. It is very easy to see the direction of data output.

| Company | Company | Company |
|---|---|---|
| 1.Alfreds Futterkiste | 2.Ana Trujillo Emparedados y helados | 3.Antonio Moreno Taquería |
| 4.Around the Horn | 5.Berglunds snabbköp | 6.Blauer See Delikatessen |
| 7.Blondesddsl père et fils | 8.Bólido Comidas preparadas | 9.Bon app' |
| 10.Bottom-Dollar Markets | 11.B's Beverages | 12.Cactus Comidas para llevar |
| 13.Centro comercial Moctezuma | 14.Chop-suey Chinese | 15.Comércio Mineiro |
| 16.Consolidated Holdings | 17.Die Wandernde Kuh | 18.Drachenblut Delikatessen |
| 19.Du monde entier | 20.Eastern Connection | 21.Ernst Handel |
| 22.Familia Arquibaldo | 23.FISSA Fabrica Inter. Salchichas S.A | 24.Folies gourmandes |
| 25.Folk och fä HB | 26.France restauration | 27.Franchi S.p.A. |
| 28.Frankenversand | 29.Furia Bacalhau e Frutos do Mar | 30.Galería del gastrónomo |
| 31.Godos Cocina Típica | 32.Gourmet Lanchonetes | 33.Great Lakes Food Market |
| 34.GROSELLA-Restaurante | 35.Hanari Carnes | 36.HILARION-Abastos |
| 37.Hungry Coyote Import Store | 38.Hungry Owl All-Night Grocers | 39.Island Trading |
| 40.Königlich Essen | 41.La corne d'abondance | 42.La maison d'Asie |
| 43.Laughing Bacchus Wine Cellars | 44.Lazy K Kountry Store | 45.Lehmanns Marktstand |
| 46.Let's Stop N Shop | 47.LILA-Supermercado | 48.LINO-Delicateses |
| 49.Lonesome Pine Restaurant | 50.Magazzini Alimentari Riuniti | 51.Maison Dewey |
| 52.Mère Paillarde | 53.Morgenstern Gesundkost | 54.North/South |
| 55.Océano Atlántico Ltda. | 56.Old World Delicatessen | 57.Ottilies Käseladen |
| 58.Paris spécialités | 59.Pericles Comidas clásicas | 60.Piccolo und mehr |
| 61.Princesa Isabel Vinhos | 62.Que Delícia | 63.Queen Cozinha |

### 5.17.2.2 DownThenAcross Mode

**AcrossThenDown** mode has a weakness in that it is not always easy to read information on the page because the content is output from left to right and then down. It is often easier to read when columns are output using the DownThenAcross mode. In this mode the data is displayed in the first column and only when that is full is data shown in the second, and so on.

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When using **DownThenAcross** mode, the report generator tries to distribute data rows evenly across the columns. When all data rows have distributed between the columns the first column is output. Because the data is evenly distributed the first column may not reach the bottom of a page - the data will take as much space on a page as is required, and it will be represented in convenient readable form (unlike the AcrossThenDown mode).

**Note:** The number of columns on a Data band is unlimited.

**Example**

In this example we will build a report with columns in **DownThenAcross** mode. Put two bands on a page: A **ColumnHeader** band and a **Data** band. On the **Data** band set the Column property to 3 (this will create three columns). Set the column width using the **ColumnWidth** property, and the space between columns using the **ColumnGaps** property. Set the **ColumnDirection** property of the Data band to **DownThenAcross** mode.

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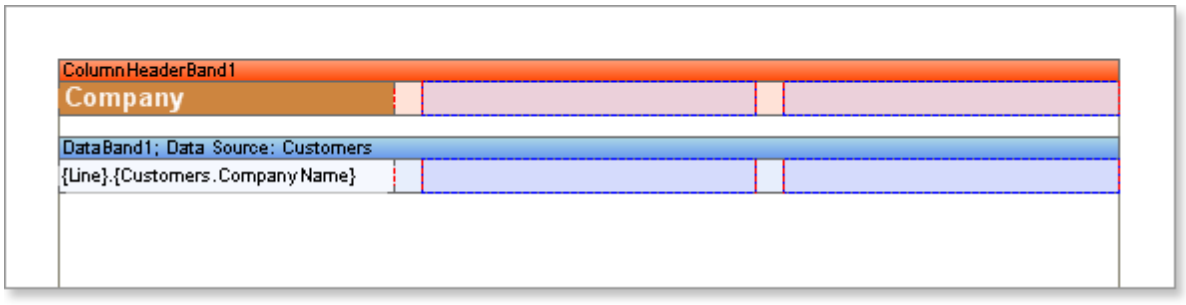
Place text components on the **ColumnHeader** band to represent the Column titles.

**Note:** Column edges are indicated with red vertical lines. All components which are placed on the first column will be automatically repeated in the other columns.




Now run the report. The report generator tried to distribute evenly all data rows between all three columns - using our sample data there are 31 rows in the first column, 31 in the second one, and 29 in the third. All information is readable top-down and from left to right.

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| Company | Company | Company |
|---|---|---|
| 1.Alfreds Futterkiste | 32.Gourmet Lanchonetes | 63.Queen Cozinha |
| 2.Ana Trujillo Emparedados y helados | 33.Great Lakes Food Market | 64.QUICK-Stop |
| 3.Antonio Moreno Taquería | 34.GROSELLA-Restaurante | 65.Rancho grande |
| 4.Around the Horn | 35.Hanari Carnes | 66.Rattlesnake Canyon Grocery |
| 5.Berglunds snabbköp | 36.HILARION-Abastos | 67.Reggiani Caseifici |
| 6.Blauer See Delikatessen | 37.Hungry Coyote Import Store | 68.Ricardo Adocicados |
| 7.Blondesddsl père et fils | 38.Hungry Owl All-Night Grocers | 69.Richter Supermarkt |
| 8.Bólido Comidas preparadas | 39.Island Trading | 70.Romero y tomillo |
| 9.Bon app' | 40.Königlich Essen | 71.Santé Gourmet |
| 10.Bottom-Dollar Markets | 41.La corne d'abondance | 72.Save-a-lot Markets |
| 11.B's Beverages | 42.La maison d'Asie | 73.Seven Seas Imports |
| 12.Cactus Comidas para llevar | 43.Laughing Bacchus Wine Cellars | 74.Simons bistro |
| 13.Centro comercial Moctezuma | 44.Lazy K Kountry Store | 75.Spécialités du monde |
| 14.Chop-suey Chinese | 45.Lehmanns Marktstand | 76.Split Rail Beer & Ale |
| 15.Comércio Mineiro | 46.Let's Stop N Shop | 77.Suprêmes délices |
| 16.Consolidated Holdings | 47.LILA-Supermercado | 78.The Big Cheese |
| 17.Die Wandernde Kuh | 48.LINO-Delicateses | 79.The Cracker Box |
| 18.Drachenblut Delikatessen | 49.Lonesome Pine Restaurant | 80.Toms Spezialitäten |
| 19.Du monde entier | 50.Magazzini Alimentari Riuniti | 81.Tortuga Restaurante |
| 20.Eastern Connection | 51.Maison Dewey | 82.Tradição Hipermercados |
| 21.Ernst Handel | 52.Mère Paillarde | 83.Trail's Head Gourmet Provisioners |
| 22.Familia Arquibaldo | 53.Morgenstern Gesundkost | 84.Vaffeljernet |
| 23.FISSA Fabrica Inter. Salchichas S.A. | 54.North/South | 85.Victuailles en stock |
| 24.Folies gourmandes | 55.Océano Atlántico Ltda. | 86.Vins et alcools Chevalier |
| 25.Folk och fä HB | 56.Old World Delicatessen | 87.Wartian Herkku |
| 26.France restauration | 57.Ottilies Käseladen | 88.Wellington Importadora |
| 27.Franchi S.p.A. | 58.Paris spécialités | 89.White Clover Markets |
| 28.Frankenversand | 59.Pericles Comidas clásicas | 90.Wilman Kala |
| 29.Furia Bacalhau e Frutos do Mar | 60.Piccolo und mehr | 91.Wolski Zajazd |
| 30.Galería del gastrónomo | 61.Princesa Isabel Vinhos | |
| 31.Godos Cocina Típica | 62.Que Delícia | |

### 5.17.2.3 Minimal Number of Rows in Column

When using the Down Then Across column mode a situation could arise where there are too few rows are available to output evenly in a report. In some cases may be necessary not to distribute data rows equally across all columns for better visualization.

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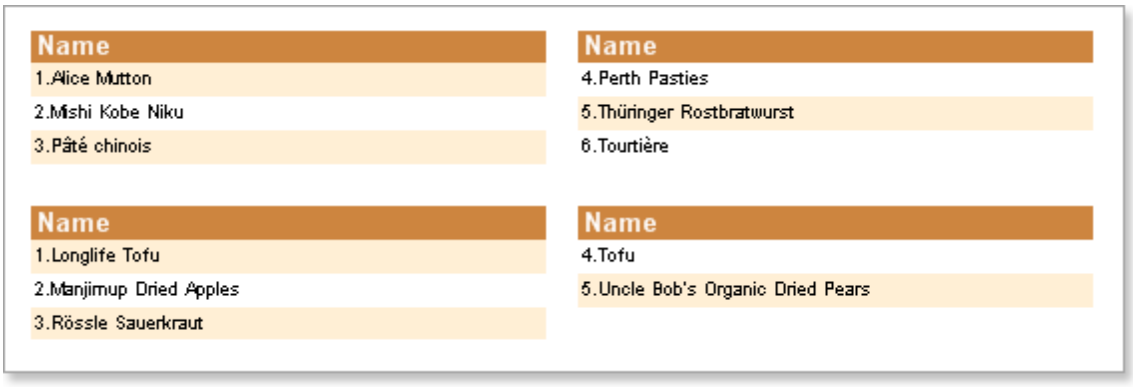


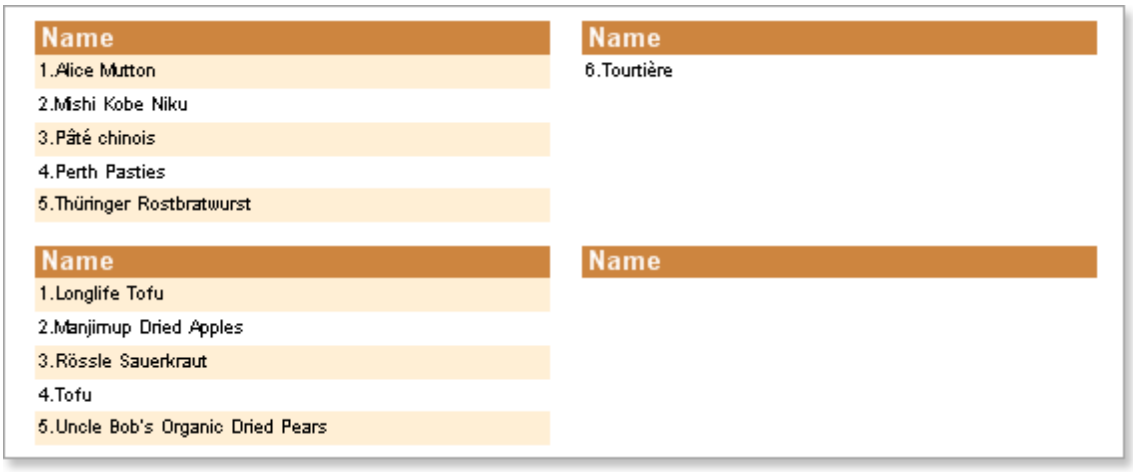
| Name |
| --- |
| 1.Alice Mutton |
| 2.Mishi Kobe Niku |
| 3.Pâté chinois |

| Name |
| --- |
| 4.Perth Pasties |
| 5.Thüringer Rostbratwurst |
| 6.Tourtière |

| Name |
| --- |
| 1.Longlife Tofu |
| 2.Manjimup Dried Apples |
| 3.Rössle Sauerkraut |

| Name |
| --- |
| 4.Tofu |
| 5.Uncle Bob's Organic Dried Pears |

The **MinRowsInColumn** property of the Data band can be used to define the minimum permitted number of rows in the first column. By default the value of this property is set to 0 which means that there is no minimum number of data rows. If the value of this property is higher than 0 then no less than specified number of rows will be output in the first column. In the example below the **MinRowsInColumn** property has been set to 5:



| Name |
| --- |
| 1.Alice Mutton |
| 2.Mishi Kobe Niku |
| 3.Pâté chinois |
| 4.Perth Pasties |
| 5.Thüringer Rostbratwurst |

| Name |
| --- |
| 6.Tourtière |

| Name |
| --- |
| 1.Longlife Tofu |
| 2.Manjimup Dried Apples |
| 3.Rössle Sauerkraut |
| 4.Tofu |
| 5.Uncle Bob's Organic Dried Pears |

| Name |
| --- |

### 5.17.2.4 ColumnHeader Band

The Header band is normally used to output data headers, but there is also a special **ColumnHeader** band. The Header band is output once before the Data band and contains only one set of data. The **ColumnHeader** band is also output only once, but the components on this band are repeated above every column. It is used only for the columns positioned on the Data band.

**Notice:** The ColumnHeader band is used for columns placed on the Data band. The Header band for page columns has the same functionality.

**Example**

In this example we will build a report using a **ColumnHeader** band. Put two bands on a page: A **ColumnHeader** band and a **Data** band. On the Data band set the Column property to 3 (this will create three columns). Set the column width using the **ColumnWidth** property, and the space between

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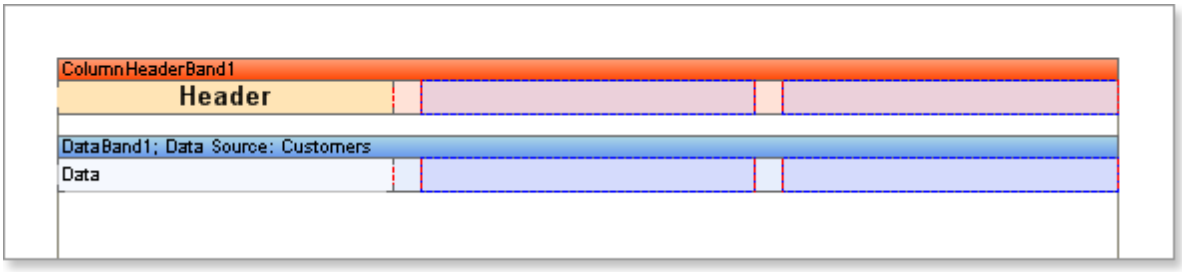
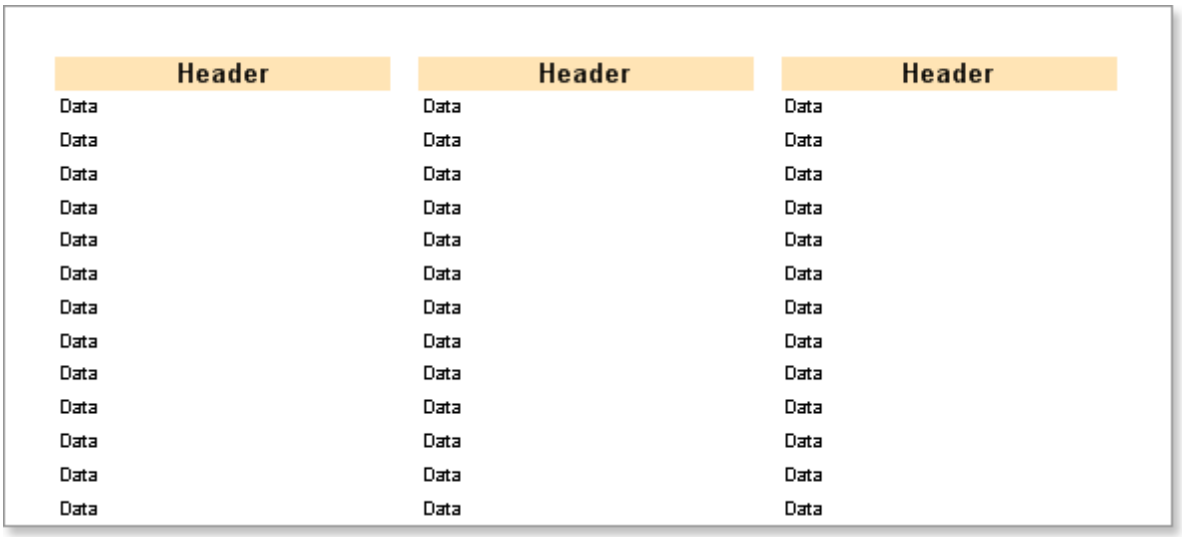
columns using the **ColumnGaps** property. Set the **ColumnDirection** property of the Data band to **DownThenAcross** mode.

Place a text component on the **ColumnHeader** band with the text 'Header'. Then put a text component on the Data band with the text 'DATA'. Do not forget that the red lines are the column edges.




Now run the report and you will see that the word "Header" is shown over every column. You need only create a single column header and it will be automatically printed on each column.




5.17.2.4.1 PrintIfEmpty Property

Ugly output can result if the number of data rows is less than number of columns resulting in gaps on the page because the same number of column headers will be output as the number of columns. If there is data sufficient for two columns then only two headers will be output.

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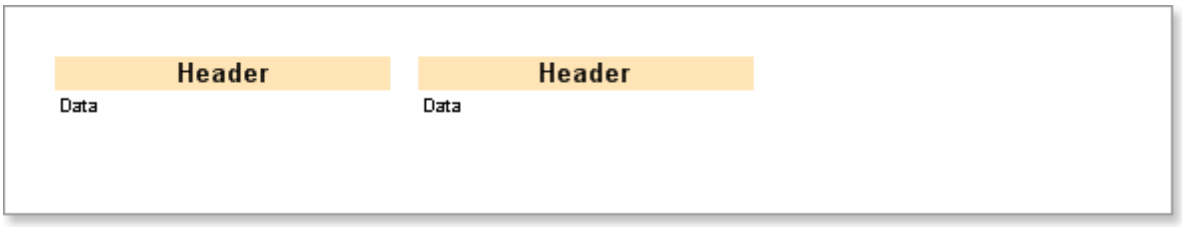


If you want to ensure that the same number of column headers are shown as the number of columns on a page without considering the number of strings available you can use the **PrintIfEmpty** property of the **ColumnHeader** band. If you set this property to true, then one header will be output for each column regardless of the amount of available data.

**Important:** It is important to remember that when the **MinRowsInColumn** property of the **DownThenAcross** mode is used, the report generator is not able to indicate the exact number of rows. Therefore, when using the **MinRowsInColumn** property, set the **PrintIfEmpty** property to true.

### 5.17.2.5 ColumnFooter Band

The Footer band is normally used to output data footers, but there is also a special **ColumnFooter** band. The Footer band is output once after the Data band and contains only one set of data. The **ColumnFooter** band is also output only once, but the components on this band are repeated beneath every column. It is used only for the columns positioned on the Data band.

**Notice:** The ColumnFooter band is used for columns placed on the Data band. The Footer band for page columns has the same functionality.

**Example**
In this example we will build a report using a **ColumnFooter** band. Put two bands on a page: A **ColumnFooter** band and a **Data** band. On the Data band set the Column property to 3 (this will create three columns). Set the column width using the **ColumnWidth** property, and the space between columns using the **ColumnGaps** property. Set the **ColumnDirection** property of the Data band to **DownThenAcross** mode.

Place a text component on the **ColumnFooter** band with the text 'Footer'. Then put a text component on the Data band with the text 'DATA'. . Do not forget that the red lines are the column edges.

Now run the report and you will see that the word "Footer" is shown under every column. You need only create a single column footer and it will be automatically printed on each column.

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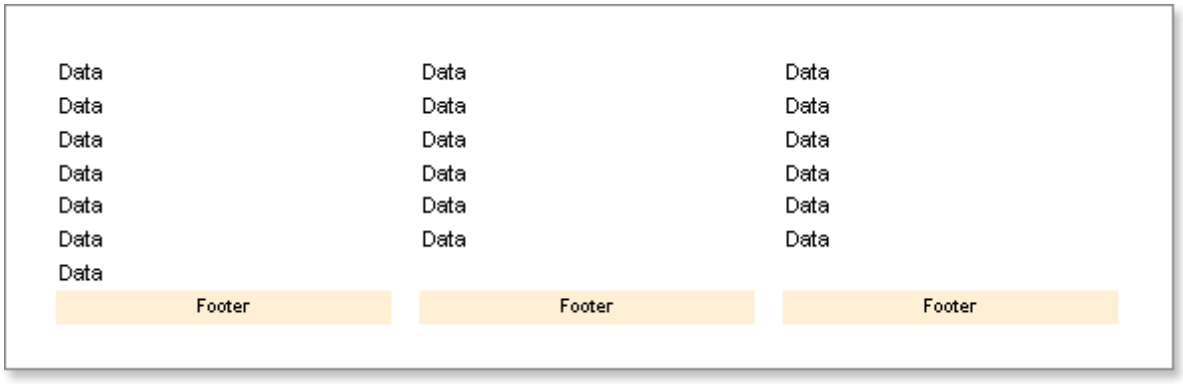


5.17.2.5.1 PrintIfEmpty Property

If you want to ensure that the same number of column footers are shown as the number of columns on a page without considering the number of strings available you can use the **PrintIfEmpty** property of the **ColumnFooter** band. If you set this property to true, then one footer will be output for each column regardless of the amount of available data.

**Important:** It is important to remember that when the **MinRowsInColumn** property of the **DownThenAcross** mode is used, the report generator is not able to indicate the exact number of rows. Therefore, when using the **MinRowsInColumn** property, set the **PrintIfEmpty** property to true.

### 5.17.2.6 Header and Footer Combinations

When outputting headers and footers for columns on a page it is very important to consider what the order in which the bands will be output on the page.

To see this in action create a report using multiple Header bands, Footer bands, **ColumnHeader** bands, **ColumnFooter** bands and just one **Data** band in a random order.

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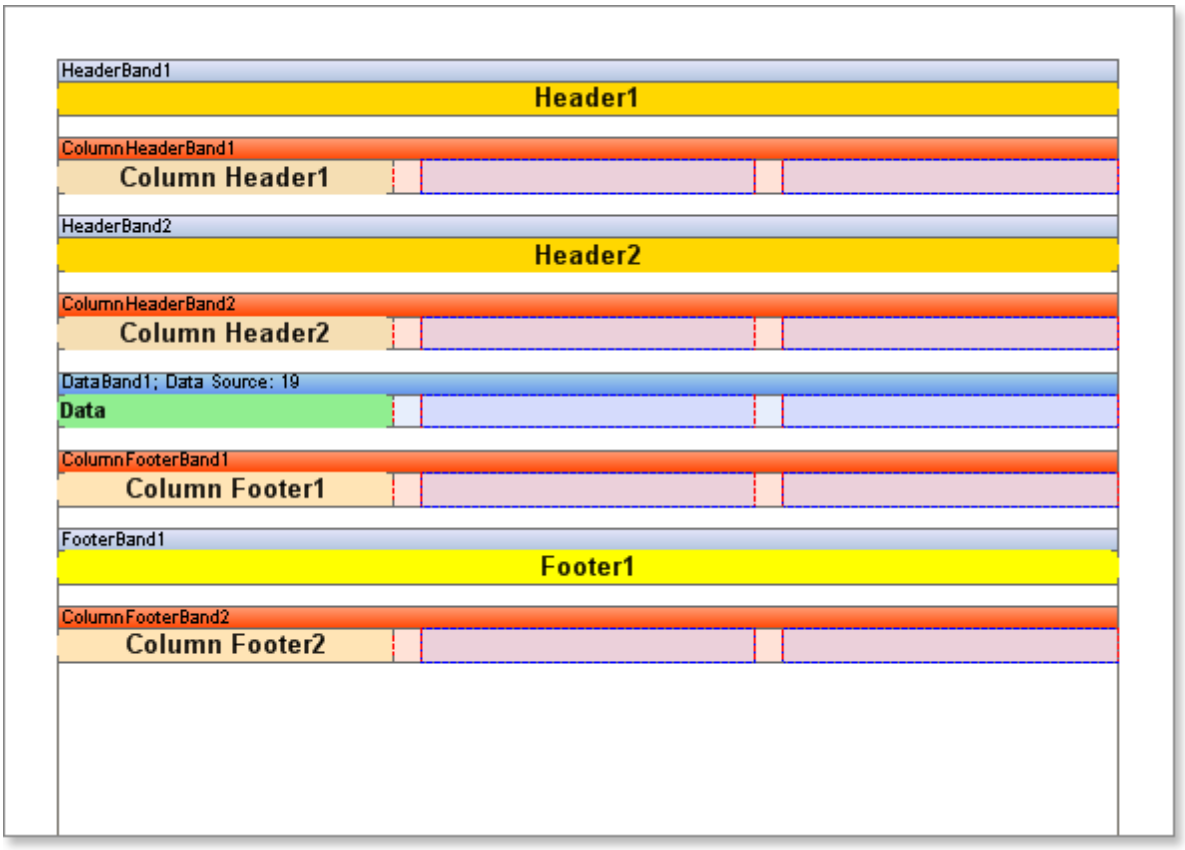


There are two modes used to output columns which will affect the output, and these will be reviewed in the following topics.

#### 5.17.2.6.1 AcrossThenDown Column Mode

In **AcrossThenDown** mode all header bands are output in order of their position in the report template. In our example as shown below the Header1 band will be output first, then the ColumnHeader1 band will be output three times over the every column. Next the Header2 band is output, and then ColumnHeader2 band over the every column. Bands are output in order of their position on a page. This allows you to combine both types of header band to get the result you want. Footer bands are output differently. The ColumnFooters are output first. Then the Footer bands are output after all data rows. However, if the **PrintOnAllPages** property of the Footer bands is set to true, then the bands will be output in order of their position on a page. It is important to remember that if the **PrintOnAllPages** property of the Footer band is set to false, then this band will be output only after all data rows.

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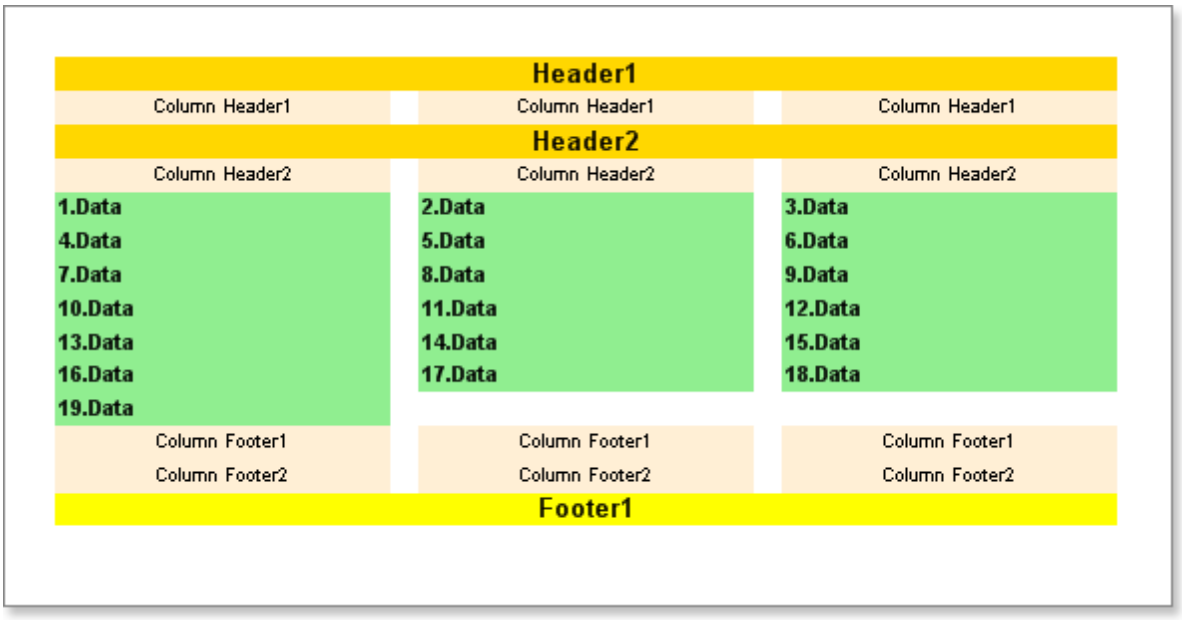
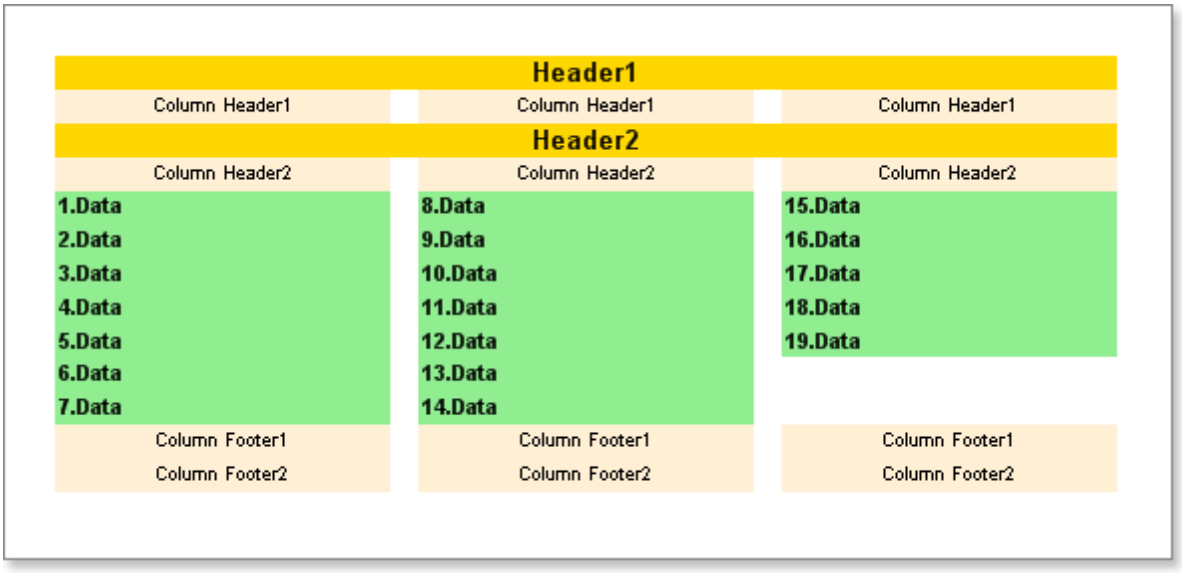



5.17.2.6.2 DownThenAcross Column Mode

This mode is similar to the Across Then Down mode. All bands are output in the same order as they are placed on a page. However, if the **PrintOnAllPages** property of the Footer band is set to true, then all Footer bands are output in the same order as they are placed on page. If the **PrintOnAllPages** property of the Footer band is set to false, then only ColumnFooter bands are output and the Footer bands are ignored.

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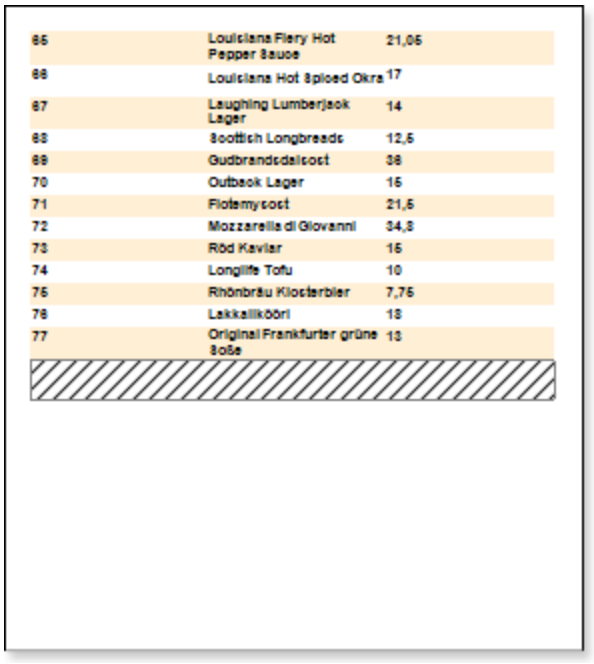
# 5.18 Page and Column Break

Sometimes it is necessary at some moment to start rendering a report on a new page. This phenomenon in Stimulsoft Reports is called **page break**. Page break can be performed using the following properties: **NewPageBefore**, **NewPageAfter**, **NewColumnBefore**, **New Column After**. These features provide the ability to generate a new page/column before or after a certain band. This feature is similar to the page break in Microsoft Word.

## 5.18.1 Page Break

**NewPageBefore property**

To break and insert a new page before a certain band you can use the **NewPageBefore** property. If the property is set to **false** for the band, then the report generator reaching this band will output it after the previous band without generating a new page. The picture below shows the **FooterBand** that is output immediately after the **DataBand**:



| | | |
|---|---|---|
| 65 | Louisiana Fiery Hot Pepper Sauce | 21,05 |
| 66 | Louisiana Hot Spiced Okra | 17 |
| 67 | Laughing Lumberjack Lager | 14 |
| 68 | Scottish Longbreads | 12,5 |
| 69 | Gudbrandsdalsost | 36 |
| 70 | Outback Lager | 15 |
| 71 | Flotemysost | 21,5 |
| 72 | Mozzarella di Giovanni | 34,8 |
| 73 | Röd Kaviar | 15 |
| 74 | Longlife Tofu | 10 |
| 75 | Rhönbräu Klosterbier | 7,75 |
| 76 | Lakkalikööri | 18 |
| 77 | Original Frankfurter grüne Soße | 13 |

If the **NewPageBefore** property is set to **true**, then the report generator at the time of the rendering a certain band, will make a gap (so that the band will be output on a new page), and on the previous page data output will be finished, despite the availability of free space on the page. The picture below shows, the **FooterBand** which the **NewPageBefore** property is set to **true**:

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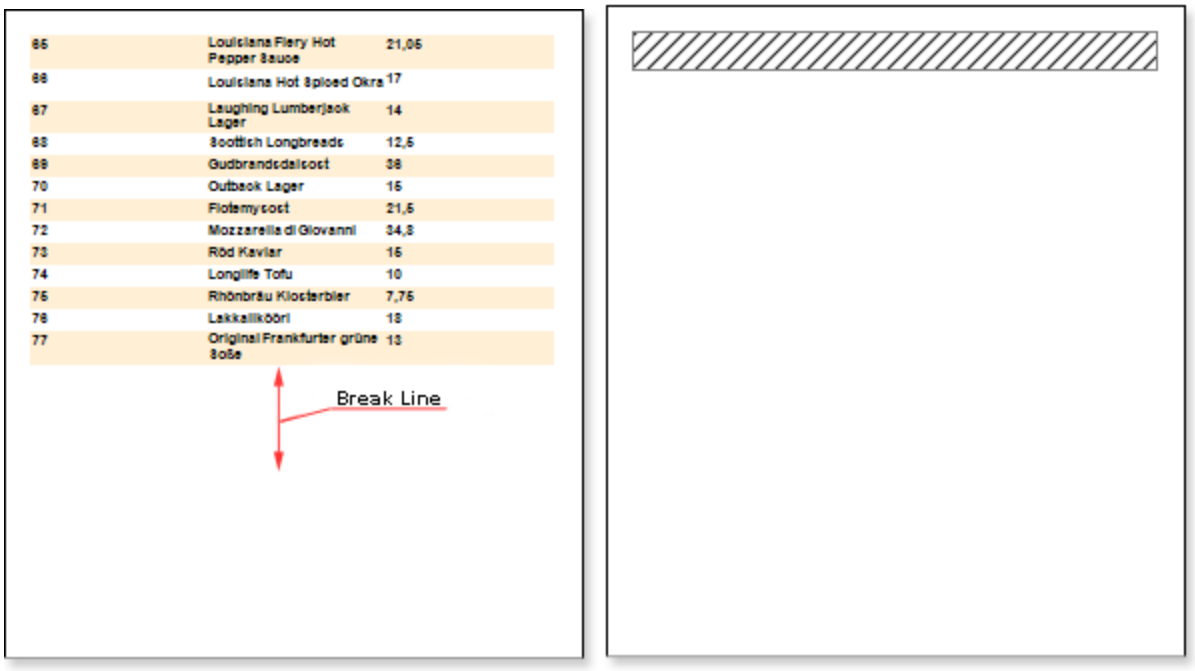
65 Louisiana Fiery Hot Pepper Sauce 21,05
66 Louisiana Hot Spiced Okra 17
67 Laughing Lumberjack Lager 14
68 Scottish Longbreads 12,5
69 Gudbrandsdalsost 36
70 Outback Lager 15
71 Flotemysost 21,5
72 Mozzarella di Giovanni 34,8
73 Röd Kaviar 15
74 Longlife Tofu 10
75 Rhönbräu Klosterbier 7,75
76 Lakkalikööri 18
77 Original Frankfurter grüne Soße 13
Break Line

It is necessary to consider that the new page first displays all service bands (Page Header Band, Page Footer Band, Header Band). Also, when rendering a new page, the report generator will take into account the value of the following properties: **Break if Less Than** and **Skip First**.

**NewPageAfter property**

Also, you can create a break and insert a page after a certain band. This can be done with the **NewPageAfter** property. If this property is set to **false** for the band, then the report generator when comes to render it will not do the gap, and immediately after it the other bands will be built. The picture below shows, the HeaderBand that is output before the DataBand:

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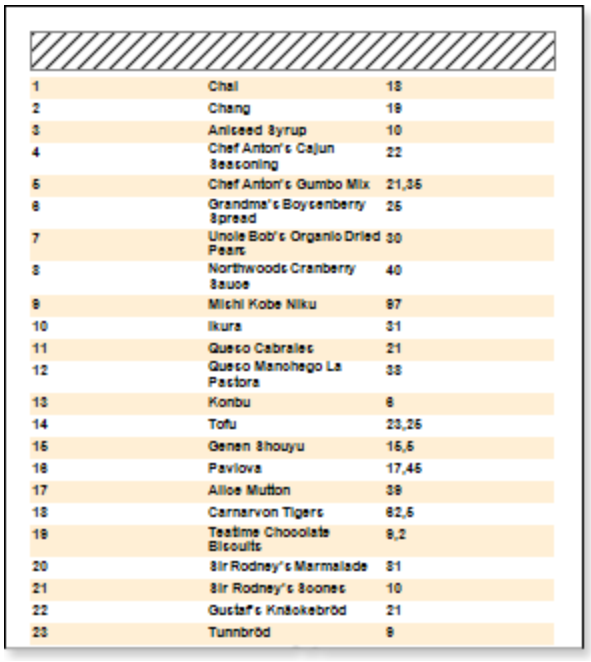
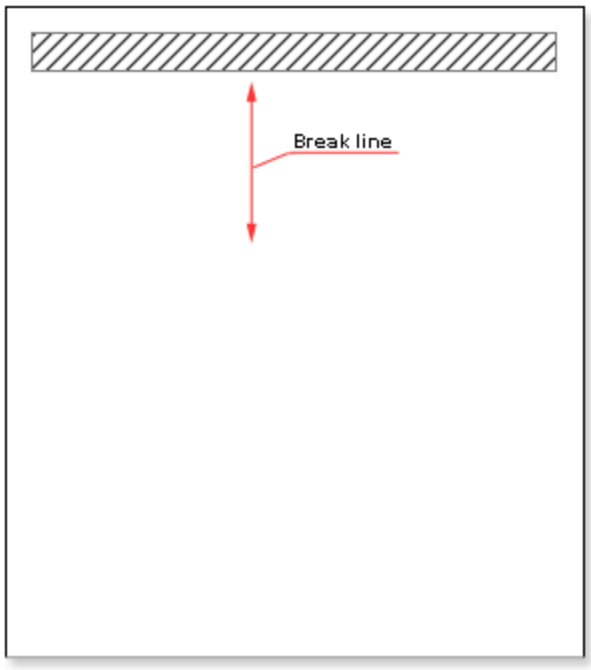
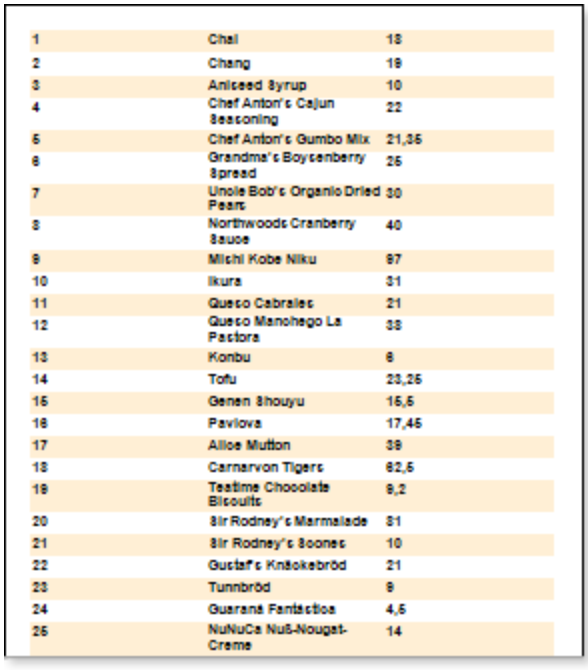


| | | |
|---|---|---|
| 1 | Chai | 18 |
| 2 | Chang | 19 |
| 3 | Aniseed Syrup | 10 |
| 4 | Chef Anton's Cajun Seasoning | 22 |
| 5 | Chef Anton's Gumbo Mix | 21,35 |
| 6 | Grandma's Boysenberry Spread | 25 |
| 7 | Uncle Bob's Organic Dried Pears | 30 |
| 8 | Northwoods Cranberry Sauce | 40 |
| 9 | Mishi Kobe Niku | 97 |
| 10 | Ikura | 31 |
| 11 | Queso Cabrales | 21 |
| 12 | Queso Manchego La Pastora | 38 |
| 13 | Konbu | 6 |
| 14 | Tofu | 23,25 |
| 15 | Genen Shouyu | 15,5 |
| 16 | Pavlova | 17,45 |
| 17 | Alice Mutton | 39 |
| 18 | Carnarvon Tigers | 62,5 |
| 19 | Teatime Chocolate Biscuits | 9,2 |
| 20 | Sir Rodney's Marmalade | 81 |
| 21 | Sir Rodney's Scones | 10 |
| 22 | Gustaf's Knäckebröd | 21 |
| 23 | Tunnbröd | 9 |

If the **NewPageAfter** property is set to **true**, then the report generator will render the band, which property will generate the new page. The next band, will be output on a new page. The picture below shows, the HeaderBand which the **NewPageAfter** property is set to **true**:



| | | |
|---|---|---|
| 1 | Chai | 18 |
| 2 | Chang | 19 |
| 3 | Aniseed Syrup | 10 |
| 4 | Chef Anton's Cajun Seasoning | 22 |
| 5 | Chef Anton's Gumbo Mix | 21,35 |
| 6 | Grandma's Boysenberry Spread | 25 |
| 7 | Uncle Bob's Organic Dried Pears | 30 |
| 8 | Northwoods Cranberry Sauce | 40 |
| 9 | Mishi Kobe Niku | 97 |
| 10 | Ikura | 31 |
| 11 | Queso Cabrales | 21 |
| 12 | Queso Manchego La Pastora | 38 |
| 13 | Konbu | 6 |
| 14 | Tofu | 23,25 |
| 15 | Genen Shouyu | 15,5 |
| 16 | Pavlova | 17,45 |
| 17 | Alice Mutton | 39 |
| 18 | Carnarvon Tigers | 62,5 |
| 19 | Teatime Chocolate Biscuits | 9,2 |
| 20 | Sir Rodney's Marmalade | 81 |
| 21 | Sir Rodney's Scones | 10 |
| 22 | Gustaf's Knäckebröd | 21 |
| 23 | Tunnbröd | 9 |
| 24 | Guaraná Fantástica | 4,5 |
| 25 | NuNuCa Nuß-Nougat-Creme | 14 |

## 5.18.2 Column Break

At the time of break one can only insert not only new pages but new columns. This can be done using

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the **NewColumnBefore** and **New Column After** properties. The logic of inserting new columns is the same as for the pages.

**NewColumnBefore**

To break and insert a column before a certain band you can use the **NewPageBefore** property. If the property is set to **false** for the band, then the report generator reaching this band will output it after the previous band without generating a new column.

| | |
|---|---|
| Chai | Chang |
| Aniseed Syrup | Chef Anton's Cajun Seasoning |
| Chef Anton's Gumbo Mix | Grandma's Boysenberry Spread |
| Uncle Bob's Organic Dried Pears | Northwoods Cranberry Sauce |
| Mishi Kobe Niku | Ikura |
| Queso Cabrales | Queso Manchego La Pastora |
| Konbu | Tofu |
| Genen Shouyu | Pavlova |
| Alice Mutton | Carnarvon Tigers |
| Teatime Chocolate Biscuits | Sir Rodney's Marmalade |
| Sir Rodney's Scones | Gustaf's Knäckebröd |
| Tunnbröd | Guaraná Fantástica |
| NuNuCa Nuß-Nougat-Creme | Gumbär Gummibärchen |
| Schoggi Schokolade | Rössle Sauerkraut |
| Thüringer Rostbratwurst | Nord-Ost Matjeshering |
| Gorgonzola Telino | Mascarpone Fabioli |
| Geitost | Sasquatch Ale |
| Steeleye Stout | Inlagd Sill |
| Gravad lax | Côte de Blaye |
| Chartreuse verte | Boston Crab Meat |
| Jack's New England Clam Chowder | Singaporean Hokkien Fried Mee |
| Ipoh Coffee | Gula Malacca |
| Rogede sild | Spegesild |
| Zaanse koeken | Chocolade |
| Maxilaku | Valkoinen suklaa |
| Manjimup Dried Apples | Filo Mix |
| Perth Pasties | Tourtière |
| Pâte chinois | Gnocchi di nonna Alice |

In order to make the break, set the **NewColumnBefore** property to **true**. In this case, the report generator at the time of rendering the band, will output a new column and add it before this band. The picture below shows the **DataBand** with the **NewColumnBefore** property set to **true**.

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In this case, it is necessary to consider that the new first column displays all service bands (Page Header Band, Page Footer Band, Header Band). Also, the construction of a new column, the report generator will take into account the value of the following properties: **Break if Less Than** and **Skip First**.

**NewColumnAfter property**

Also, you may need to make a break and insert a new column after a certain band. This can be done with the **New Column After** property. If the **NewColumnAfter** property is set to **false**, then all the bands will be displayed one after another.

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| | |
|---|---|
| Chai | Chang |
| Aniseed Syrup | Chef Anton's Cajun Seasoning |
| Chef Anton's Gumbo Mix | Grandma's Boysenberry Spread |
| Uncle Bob's Organic Dried Pears | Northwoods Cranberry Sauce |
| Mishi Kobe Niku | Ikura |
| Queso Cabrales | Queso Manchego La Pastora |
| Konbu | Tofu |
| Genen Shouyu | Pavlova |
| Alice Mutton | Carnarvon Tigers |
| Teatime Chocolate Biscuits | Sir Rodney's Marmalade |
| Sir Rodney's Scones | Gustaf's Knäckebröd |
| Tunnbröd | Guaraná Fantástica |
| NuNuCa Nuß-Nougat-Creme | Gumbär Gummibärchen |
| Schoggi Schokolade | Rössle Sauerkraut |
| Thüringer Rostbratwurst | Nord-Ost Matjeshering |
| Gorgonzola Telino | Mascarpone Fabioli |
| Geitost | Sasquatch Ale |
| Steeleye Stout | Inlagd Sill |
| Gravad lax | Côte de Blaye |
| Chartreuse verte | Boston Crab Meat |
| Jack's New England Clam Chowder | Singaporean Hokkien Fried Mee |
| Ipoh Coffee | Gula Malacca |
| Rogede sild | Spegesild |
| Zaanse koeken | Chocolade |
| Maxilaku | Valkoinen suklaa |
| Manjimup Dried Apples | Filo Mix |
| Perth Pasties | Tourtière |
| Pâte chinois | Gnocchi di nonna Alice |

In order to insert a new column the **NewColumnAfter** property should be set to **true**, after rendering the band, the report generator output a new column after this band. The picture below shows the DataBand with the **NewColumnAfter** property set to **true**.

| |
|---|
| Chai |
| Aniseed Syrup |
| Chef Anton's Gumbo Mix |
| Uncle Bob's Organic Dried Pears |
| Mishi Kobe Niku |
| Queso Cabrales |
| Konbu |
| Genen Shouyu |
| Alice Mutton |
| Teatime Chocolate Biscuits |
| Sir Rodney's Scones |
| Tunnbröd |
| NuNuCa Nuß-Nougat-Creme |
| Schoggi Schokolade |
| Thüringer Rostbratwurst |
| Gorgonzola Telino |
| Geitost |
| Steeleye Stout |
| Gravad lax |
| Chartreuse verte |
| Jack's New England Clam Chowder |
| Ipoh Coffee |
| Rogede sild |
| Zaanse koeken |
| Maxilaku |
| Manjimup Dried Apples |
| Perth Pasties |
| Pâte chinois |

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### 5.18.3 Break if Less Than Property

The **Break if Less Than** property can be any number value from 0 to 100. The value of this property affects where it will generate a new page or column. At the time of the report creation, report generator measures the amount of free space on the page as a percentage. If the entire page is empty, it is equivalent to 100 per cent, if the page is full - 0 percent. It should be considered that by default the **Break if Less Than** property is set to 0, which means that this option is disabled. Therefore, if the value of this property is 0, the report writer compares the percentage of free space on the page with the specified property value. As a result, the report generator will generate a new page or column, if the free space on the page is less than a predetermined value. The property value is a key value, i.e **Break if Less Than** property cannot be empty, it must take a value.

### 5.18.4 Skip First Property

The **Skip First** property works only with the **NewPageBefore** and **NewColumnBefore** property. With this property, the first entry from the database will be output on the page and then the page break will be executed, i.e. the first item will be skipped. For this, the **Skip First** property should be set to **true**. If it is set to **false**, a blank page (column) will be generated right after the band.

## 5.19 Pagination

Sometimes it is necessary to number pages. Page numbering is applied using system variables. Page numbering is set by adding system variables into an expression. The code below shows how

```
{PageNumber}
```

```
{PageNofM}
```

```
{TotalPageCount}
```

### 5.19.1 Page Number

Let see page numbering using the **PageNumber** system variable. When using this variable, the page number will be displayed on each page. Place where the page number is shown depends on which band is the text component, in expressions of what the system variable is used.

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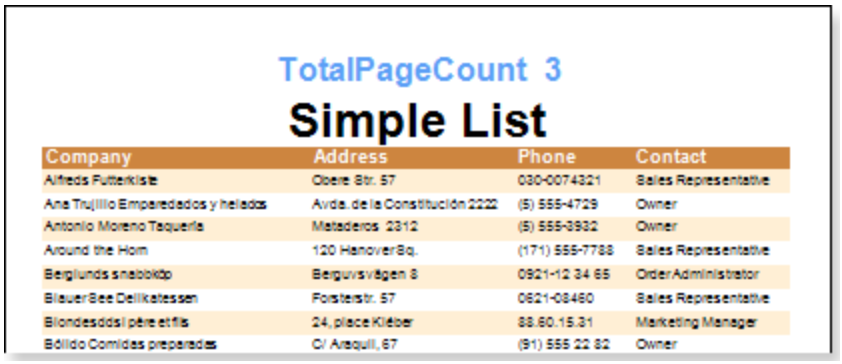
PageNumber 1
Simple List
Company Address Phone Contact
Alfreds Futterkiste Obere Str. 57 030-0074321 Sales Representative
Ana Trujillo Emparedados y helados Avda. de la Constitución 2222 (5) 555-4729 Owner
Antonio Moreno Taquería Mataderos 2312 (5) 555-3932 Owner
Around the Horn 120 HanoverSq. (171) 555-7788 Sales Representative

On the picture above the **PageNumber** system variable was used on the **PageHeaderBand** band. System variable can be used in any text component. The text component can be placed on any page band.

## 5.19.2 Total Page Count

The **TotalPageCount** system variable is used to output the total number of pages.


TotalPageCount 3
Simple List
Company Address Phone Contact
Alfreds Futterkiste Obere Str. 57 030-0074321 Sales Representative
Ana Trujillo Emparedados y helados Avda. de la Constitución 2222 (5) 555-4729 Owner
Antonio Moreno Taquería Mataderos 2312 (5) 555-3932 Owner
Around the Horn 120 HanoverSq. (171) 555-7788 Sales Representative
Berglunds snabbköp Berguvsvägen 8 0921-12 34 65 Order Administrator
Blauer See Delikatessen Forsterstr. 57 0621-08460 Sales Representative
Blondesddsl père et fils 24, place Kléber 88.60.15.31 Marketing Manager
Bólido Comidas preparadas C/ Araquil, 67 (91) 555 22 82 Owner

On the picture above you can see how total number of pages is output. The **TotalPageCount** system variable is used with the **PageNumber** system variable. Usually it looks like this: **{PageNumber} Of {TotalPageCount}**. For example, **5 of 10**.

## 5.19.3 Page NofM

In order to show the page number of the total number of pages in the report generator the **PageNofM** system variable is used. This variable is a combination of system variables, such as the **PageNumber** and the **TotalPageCount**, i.e. it will print the page number on the total number of pages.

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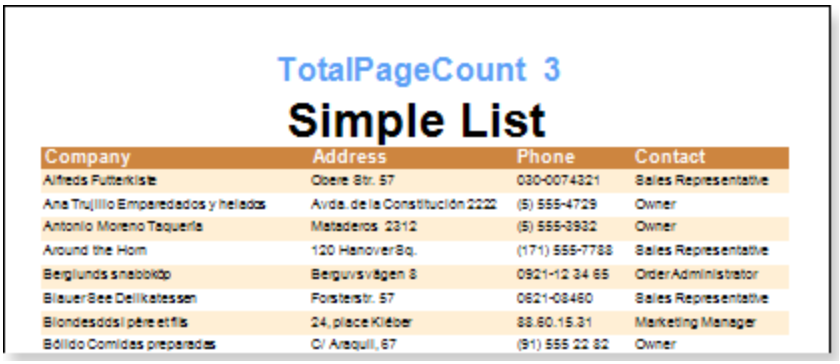
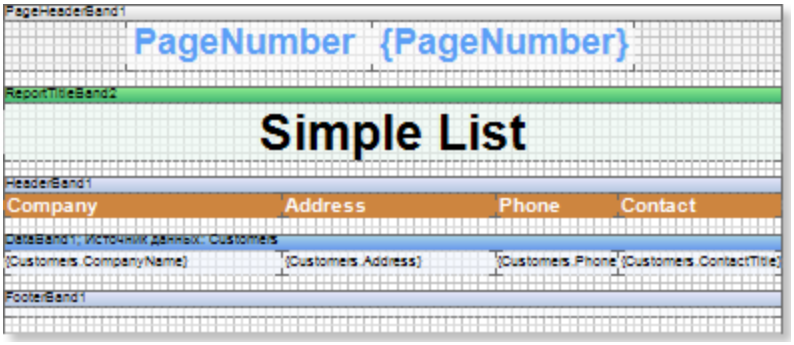


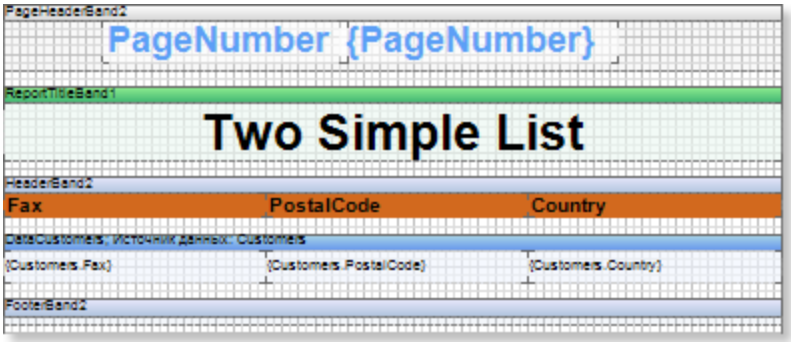

On the picture above the **"Page 1 of 3"** shows that the first page of three pages is available. The **PageNofM** depends on localization so it should be used very carefully.

## 5.19.4 ResetPageNumber Property

The numbering of the pages of the report begins with the number 1 and is defined consistently for each page built by the report.




On the picture above the first page of a template is represented.




On the picture above the second page of a template is represented.

If, when report rendering, the **ResetPageNumber** is set to **false**, then numeration will look like on the picture below:

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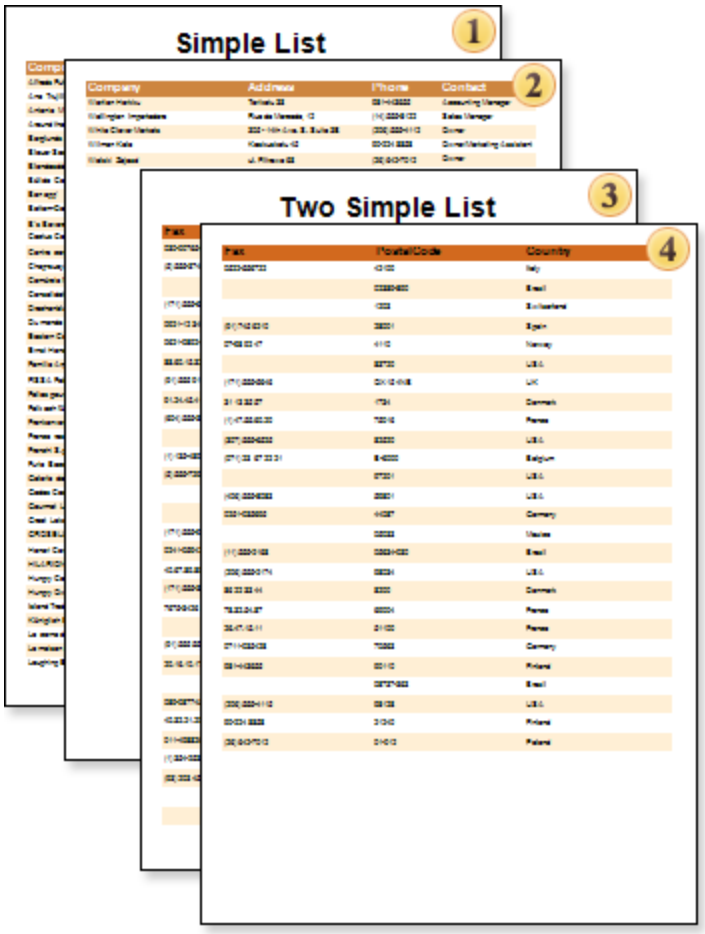


If the set the **ResetPageNumber** page property to **true**, then numeration for each page of a template will start from 1:

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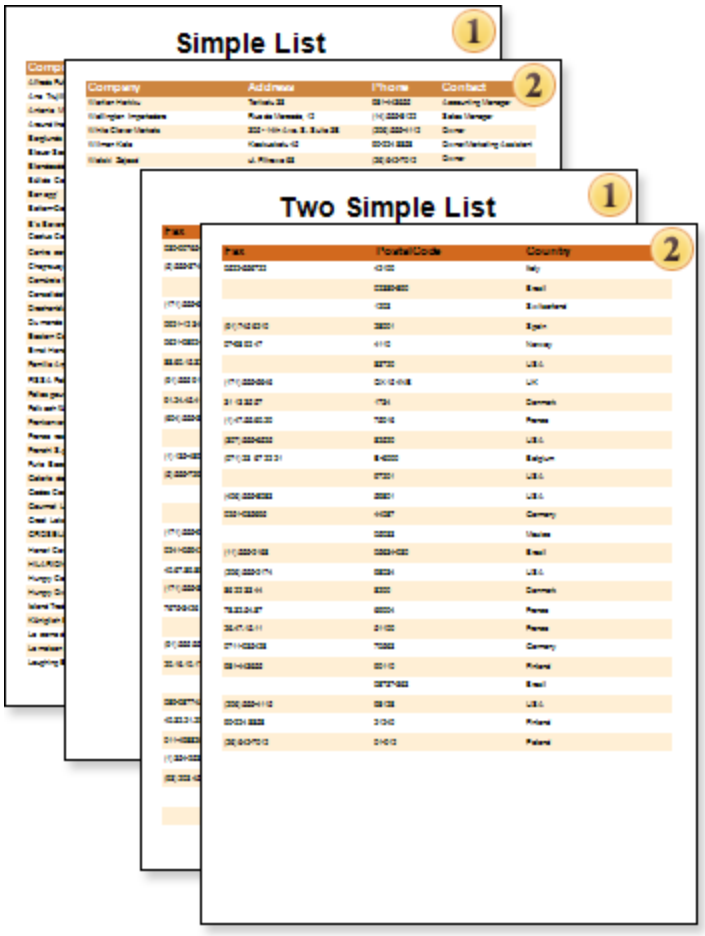


**Information:** The **ResetPageNumber** property works with the following variables: **PageNumber**, **PageNofM**, **TotalPageCount**. With system variables: **PageNumberThrough**, **PageNofMThrough**, **TotalPageCountThrough** - this property does not work.

By default the property is set to **false**.

### 5.19.5 Sequentially Numbered Pages

Sequential numbering (numbering without taking into account the **ResetPageNumber** property) set the **SystemVariables**:

- {PageNumberThrough} - **PageNumberThrough**, displays the page number;
- {TotalPageCountThrough} - **TotalPageCountThrough**, displays the total number of pages of the rendered report;
- {PageNofMThrough} - **PageNofM**, is a combination of **PageNumberThrough** and **TotalPageCountThrough**, and displays the page number in relation to the total number of pages in the rendered report..

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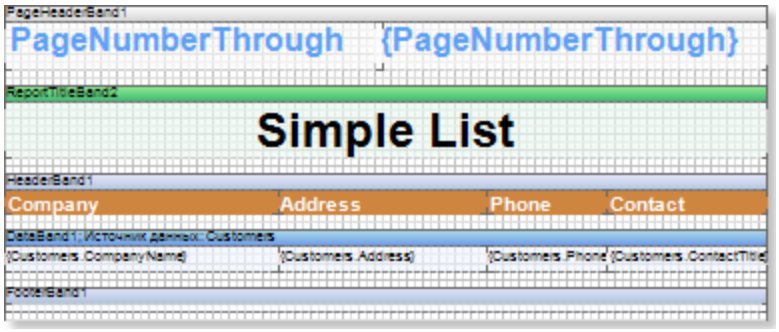
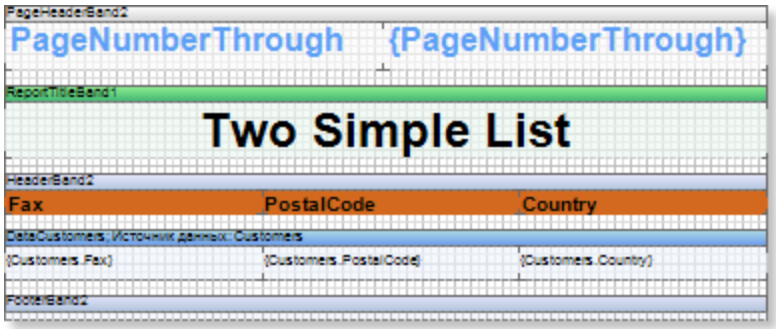



The picture above shows the first page of the report template.




The picture above shows the second page of the report template.

After rendering a report, even if the **ResetPageNumber** property of the page is set to **true**, the numbering of pages of the rendered report is to be consistent.

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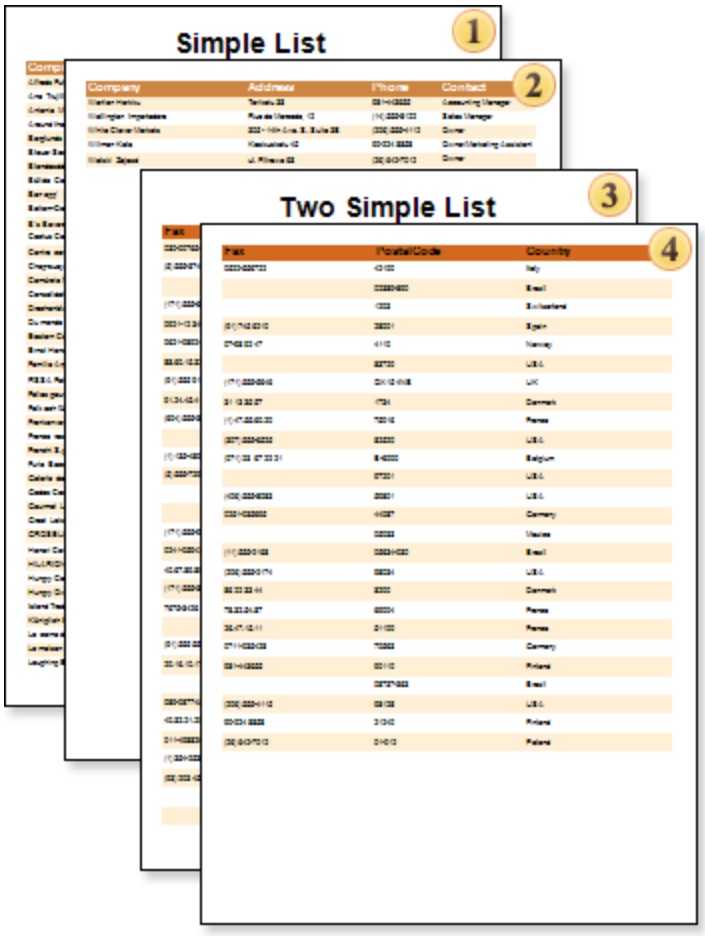


In other words, if the **ResetPageNumber** property is set to **true**, then, when using the system variables, mentioned above, the numeration will not be reset. So it will continue to be consistent for each page of the rendered report.

## 5.20 Breaking Component

If, when rendering a report, the component will not fit the entire page, it will be carried to the next page. In addition, there are cases where the component has a size larger than the page size and cannot be output entirely on a page. In this case, you can use the **CanBreak** property. Components for which this property is set to **true**, can be "broken" with the Report Engine. I.e. the first part of a component will be printed on one page, and the second one on the next page. For example, a component of the **Text** has 10 lines, on the first page 7 lines will be output, and 3 lines on the next page.

### 5.20.1 Breaking Bands

How to use the **CanBreak** property of bands. The picture below shows two pages of a rendered report, which has 5 bands. The picture shows: the first and the second bands are output on the first

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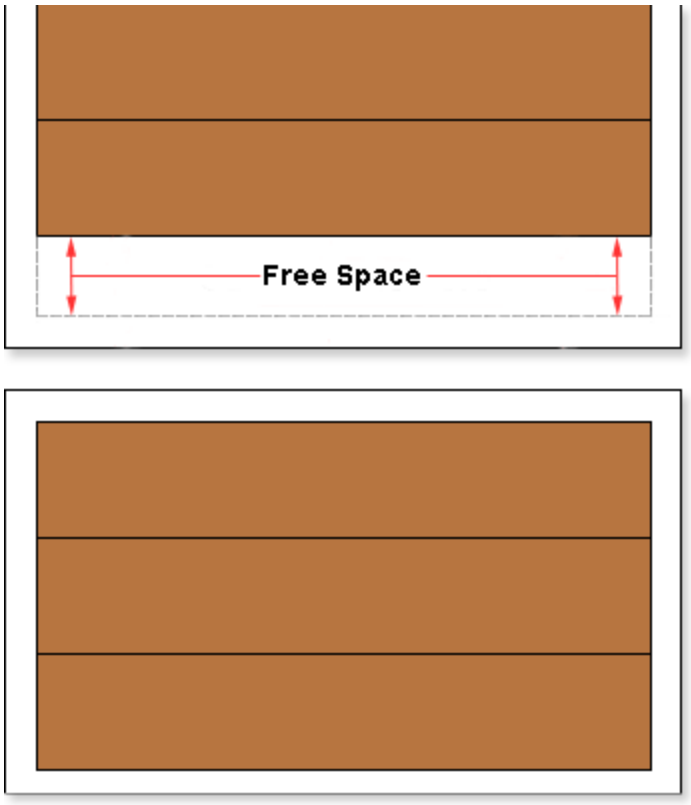
page. The third band could not fit the bottom of the first page, so it was moved to the next page, along with the fourth and fifth bands.




In this case, free space available remained on the first page of the report, because the band could not fit entirely and was moved to with the report engine to the next page. If to set the **CanBreak** property to **true**, then this will be "broken. The picture below shows how the of the third band is broken.

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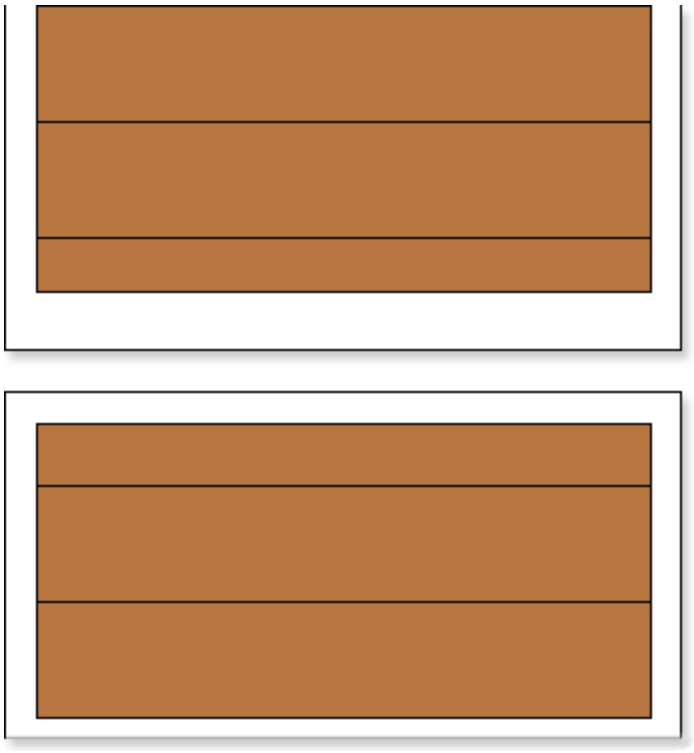

In this case we see that the third band could not fit, so it was broken: one part was left on the first page, and the second was moved to the next page, respectively. So all the space of the page was used. It should also take into account that the band may not fit within a single page. If the **CanBreak** is set to **false**, then it will be moved to the next page. If, on the next page, the band does not fit completely, it will be forcibly broken. You should know that special bands are displayed on the first page, and the remaining space of the page will be used to output the broken band. It is worth noting that the band may be output on more than one page. There are no limitations on the number of pages in which parts of the broken band can be output. By default, the **CanBreak** property is set to **false**.

### 5.20.2 Breaking Text

By default, the **CanBreak** property of the **Text** component is set to **false**. Such a Text component will not be broken if it is not enough space to print on one page, and would be moved to the next page.

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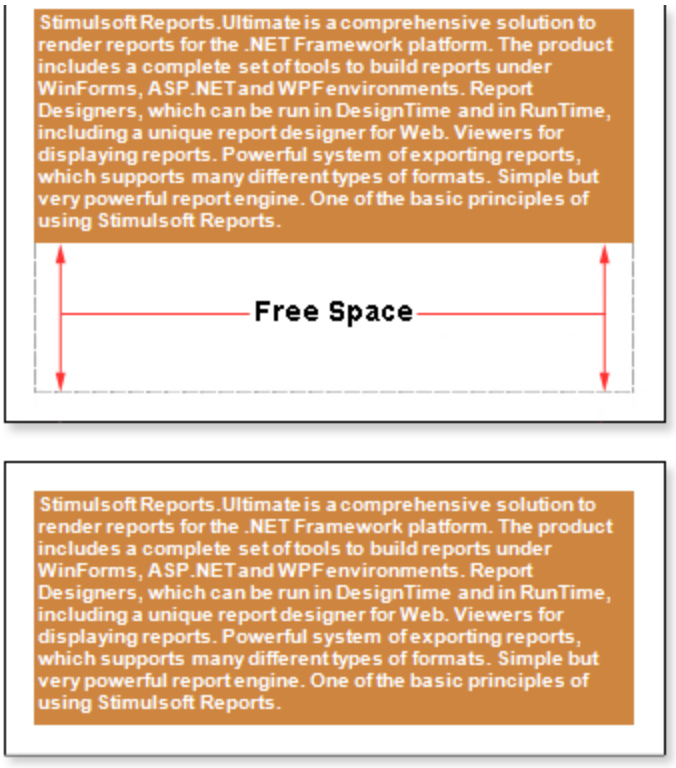
Stimulsoft Reports.Ultimate is a comprehensive solution to render reports for the .NET Framework platform. The product includes a complete set of tools to build reports under WinForms, ASP.NET and WPF environments. Report Designers, which can be run in DesignTime and in RunTime, including a unique report designer for Web. Viewers for displaying reports. Powerful system of exporting reports, which supports many different types of formats. Simple but very powerful report engine. One of the basic principles of using Stimulsoft Reports.
Free Space
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As seen on the picture above, free space left at the bottom of the first page. To avoid this, set the **CanBreak** property to **true**. And then, a **Text** component is broken, for example, as shown on a picture below:

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In this case, a **Text** component could not fit entirely on the bottom of a page, so it was broken. I.e. a part of the component remains on the same page, and another part was moved to the next one. Note that the text component is broken by row. Small amount of free space remains, as report generator must output the full height of a row and the text remains readable. Also note that the break of the text component will not work if the **CanBreak** property in a container, which has a text component, is set to **false**. Because the container would be moved to the next page completely. Accordingly, together with it, a text component will be transferred and the break will not work. So, if you need a break, then set the **CanBreak** property to **true** for the Text component and container to what the text component is placed.

## 5.20.3 Breaking Panels

Sometimes, in a report template, where the **Panel** is used, all data cannot fit one page. If the **CanBreak** property is set to **false**, then a report, may look like on the picture below.

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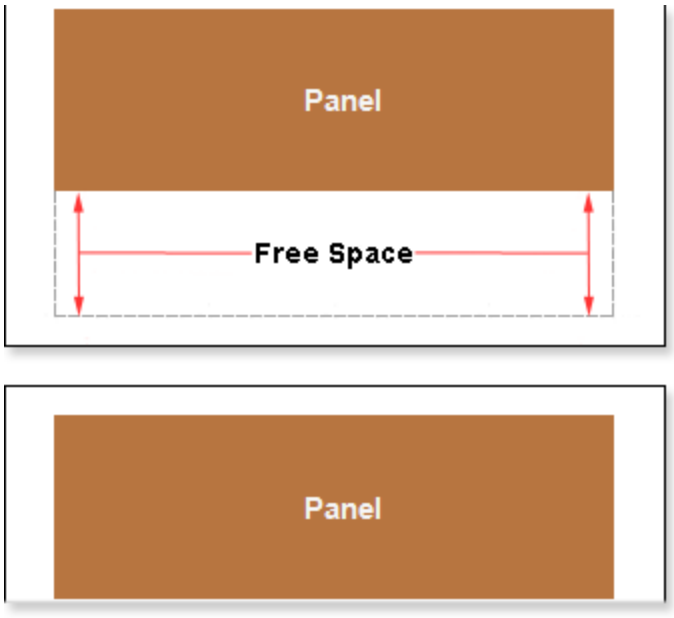
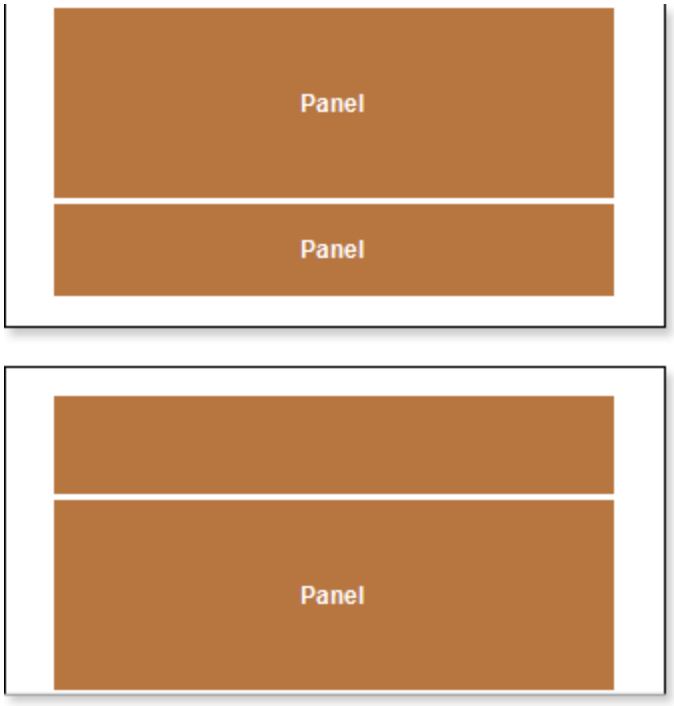



As shown in the picture above, the **Panel** was moved to another page, and free blank space remained on the previous page. If the **CanBreak** property is set to **true**, then the report may look like on the picture below:




As shown in the picture above, the **Panel** was broken, i.e. a part of it remained on the first page, and the other was moved to the next page. It should also take into account that the panel may not fit a single page. If to set the **CanBreak** property to **false**, then it will be moved to the next page. If on the next page the panel does not fit completely, it will be forcibly broken. You should know that special

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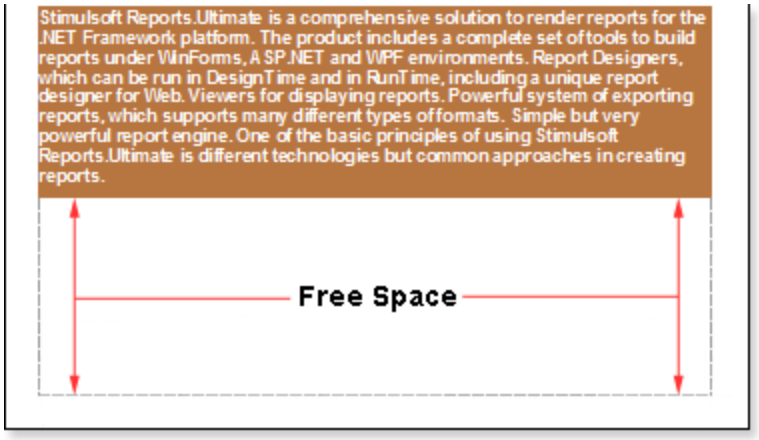
bands are displayed on the first page, and the remaining space of the page will be used to output the broken panel. It is worth noting that the panel may be output on more than one page. There are no limitations on the number of pages in which parts of the broken panel can be output. By default, the **CanBreak** property is set to **false**.

### 5.20.4 Breaking RichText

By default, the **CanBreak** property of the **RichText** component is set to **false**. Such a text component will not be broken, if it is not enough space to print it on one page, and would be moved to the next page.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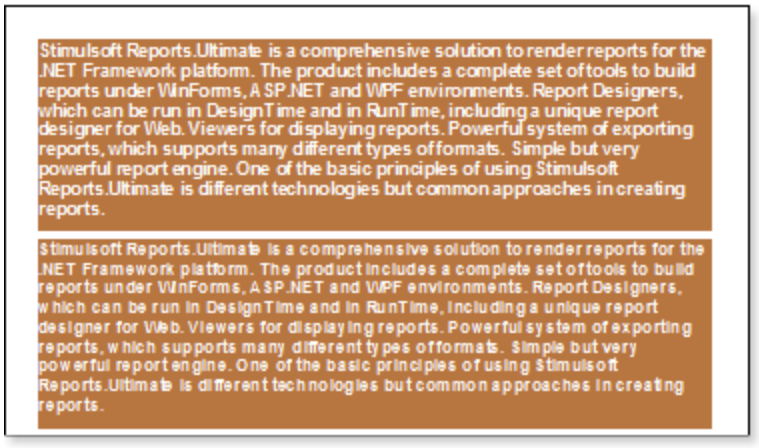
Free Space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As you can see on the picture above, on the free space remained at the bottom of the first page. To avoid this, set the **CanBreak** property to **true**. And then, a component of the **RichText** will be broken (see the picture below):

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As shown in the picture above, the **RichText** was broken, i.e. a part of it remained on the first page, and the other was moved to the next page. It should also take into account that the component may not fit a single page. You should know that the text component is broken rowwise. Also note that the breaking of the text component will not work if the **CanBreak** property of the band, in what the text component is placed, is set to **false**, because the band will be moved entirely to the next page. So the text component will be moved together with the band. So, if you need the text component to be broken, then values of **CanBreak** properties for the text component and the band should be set to **true** .

## 5.20.5 Breaking Images

In some cases the **Image** does not fit one page. So the image will be moved to the next page.

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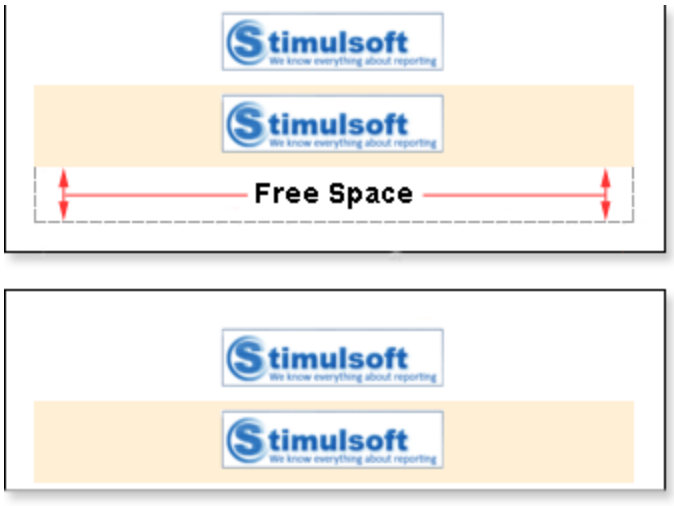


As you can see on the picture above, free space remained on the first page. To avoid this, set the **CanBreak** property to **true**. And then, the **Image** component will be broken, as seen on the picture below:

As shown in the picture above, the **Image** component was broken, i.e. a part of it remained on the first page, and the other was moved to the next page. Also note that the breaking of the **Image** component will not work if the **CanBreak** property of the band, in what the **Image** component is placed, is set to **false**, because the band will be moved entirely to the next page. So the **Image** component will be moved together with the band. So, if you need the Image to be broken, then values of**CanBreak** properties for the Image and the band should be set to **true**.

## 5.20.6 Auto-break

If a component of the report template is more than a page, then, when rendering a report, the component does not fit a page. If the **CanBreak** property is set to **true**, then the component will be broken into parts. If the **CanBreak** property is set to **false**, and the component is larger then the page of a report, the then report engine, tries to move it to the second page. If the data do not fit the second page, they will be forcibly broken, regardless of the value set for the **CanBreak** property and the availability of this property for the component of the report template. Moreover, when forced breaking, a blank page is output before the component. I.e. the first page of the report is empty, and each time data output begins with a new page. In this case, also all special bands are output on the

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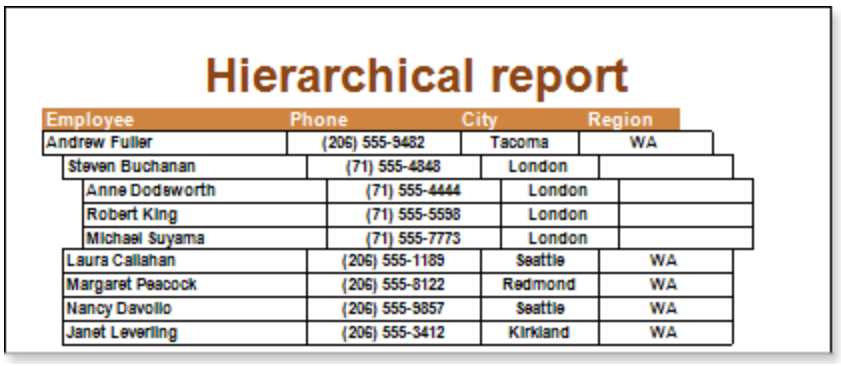
page.

### 5.20.7 Breaking and Page Bands

There is no possibility for the **PageHeaderBand** and **PageFooterBand** to change the value of the **CanBreak** property, because it is always set to the one value. By default, the **CanBreak** property is set to **true**. This means that, when designing a report, if sizes of page bands is more than a page size, then bands will broken. You should also take into account the value of the property of the component, located on the band page. If the **CanBreak** property of a component placed on the band page is set to **false**, then in that case, there will be auto-break. If the **CanBreak** property of a component placed on the band page is set to **true**, then the break will be executed, depending on the type of a component (text, panel, picture, Rich Text).

## 5.21 Hierarchical Band

The **HierarchicalBand** is used to display report data as a tree. The picture below shows an example of a hierarchical report:




### 5.21.1 Data Output

In order to obtain a structured list in a report as a tree, you must follow these steps:

✓ Specify the **DataSource** for the **HierarchicalBand** using, for example, the **DataSource** property:

✓ Set the **KeyDataColumn**, i.e. select the data column by what an identification number of data rows will be assigned. For example, a **EmployeeID** data column;
✓ Set the **MasterKeyDataColumn**, i.e. select the data column by which a reference to the primary table key of the parent entry will be specified. For example, a **ReportsTo** data column;
✓ Set the **Indent**, i.e. specify the indent distance of the child entry relative to the parent entry. For example, the **Indent** value will be equal to **20** units of a report (centimeters, inches, one hundredth

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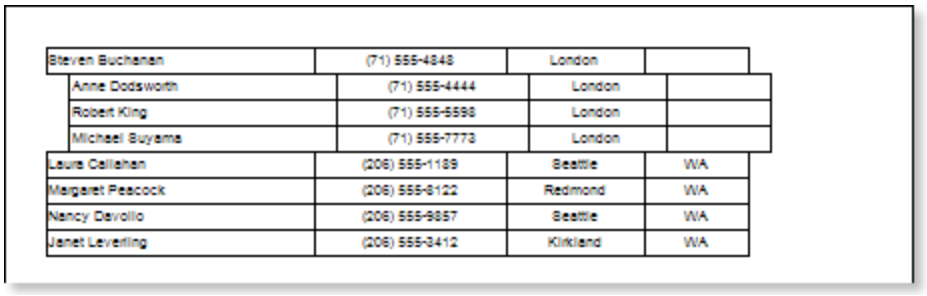
inches, pixels);

✓ Set the **ParentValue**, i.e. specify an entry that will be a parent for all rows. For example, set the **ParentValue** property to **2**.

The picture below shows an example of a rendered hierarchical report:



| | | | |
|---|---|---|---|
| Steven Buchanan | (71) 555-4848 | London | |
| Anne Dodsworth | (71) 555-4444 | London | |
| Robert King | (71) 555-5598 | London | |
| Michael Suyama | (71) 555-7773 | London | |
| Laura Callahan | (206) 555-1189 | Seattle | WA |
| Margaret Peacock | (206) 555-8122 | Redmond | WA |
| Nancy Davolio | (206) 555-9857 | Seattle | WA |
| Janet Leverling | (206) 555-3412 | Kirkland | WA |

## 5.21.2 KeyDataColumn Property

The **HierarchicalBand** has the **KeyDataColumn** property. This property is required for filling. If the **KeyDataColumn** is not specified, the report generator will not be able to render a report. The value of this property can be any data column from the selected **HierarchicalBand** of the data source, which entries will be keys for creating a report. For example, if the **Employees** data source is specified to the **HierarchicalBand**, then the value of the **KeyDataColumn** property is the **EmployeesID** data column, because the entry of this column is the key and contains unique codes of employees.

## 5.21.3 MasterKeyDataColumn Property

In order to represent an hierarchy in the report, you must specify the value of the **MasterKeyDataColumn** property. This property is required for filling. If the value of the **MasterKeyDataColumn** is not specified, the report generator cannot determine the hierarchy in the report. The value of this property will be a data column from the selected **HierarchicalBand** of the data source, which entries are the master key for creating an hierarchy in the report. For example, if the **Employees** data source is specified for the **HierarchicalBand**, then the **MasterKeyDataColumn** property is the **ReportsTo** column data. The values of this data column are used to specify to what this element in the table is subordinated. Usually, this column indicates the keys in the data column, which is a value of the **KeyDataColumn** property. The picture below shows the scheme of an hierarchy of the **ReportsTo** data column:

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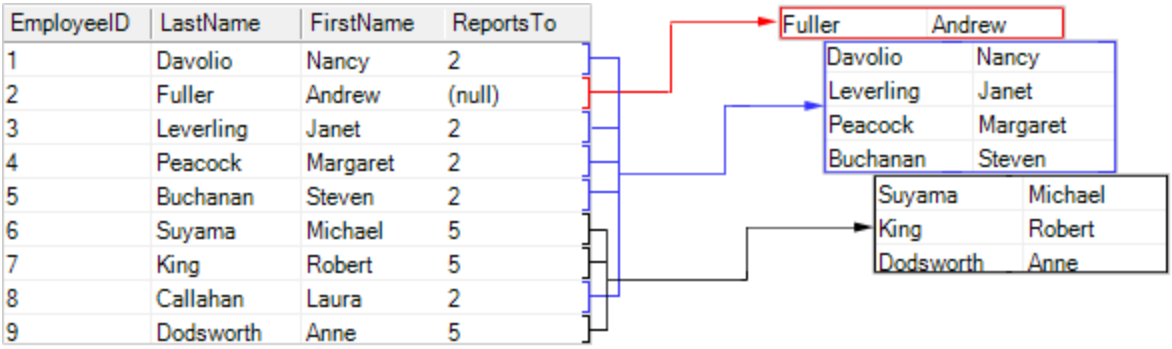

| EmployeeID | LastName | FirstName | ReportsTo |
|---|---|---|---|
| 1 | Davolio | Nancy | 2 |
| 2 | Fuller | Andrew | (null) |
| 3 | Leverling | Janet | 2 |
| 4 | Peacock | Margaret | 2 |
| 5 | Buchanan | Steven | 2 |
| 6 | Suyama | Michael | 5 |
| 7 | King | Robert | 5 |
| 8 | Callahan | Laura | 2 |
| 9 | Dodsworth | Anne | 5 |

| | |
|---|---|
| Fuller | Andrew |

| | |
|---|---|
| Davolio | Nancy |
| Leverling | Janet |
| Peacock | Margaret |
| Buchanan | Steven |

| | |
|---|---|
| Suyama | Michael |
| King | Robert |
| Dodsworth | Anne |

## 5.21.4 ParentValue Property

The **ParentValue** property is used to identify entries which will be the parent rows for the remaining rows in a report. Parent rows are rows which are placed on the top level of hierarchy and in which all other elements are included. The report must have at least one parent line, if the parent line is missing, the report cannot be rendered. The **ParentValue** property can take any value, which is an entry in the data column, which is listed as the **MasterKeyDataColumn**. For example, if the **MasterKeyDataColumn** property is the **ReportsTo** data column, then the value of the **ParentValue** property will be entries in this column. The picture below shows an example of the **EmployeeID**, **LastName**, **City**, **Region**, **ReportsTo** data columns of the **Employees** data source:

| EmployeeID | LastName | City | Region | ReportsTo |
|---|---|---|---|---|
| 1 | Davolio | Seattle | WA | 2 |
| 2 | Fuller | Tacoma | WA | (null) |
| 3 | Leverling | Kirkland | WA | 2 |
| 4 | Peacock | Redmond | WA | 2 |
| 5 | Buchanan | London | (null) | 2 |
| 6 | Suyama | London | (null) | 5 |
| 7 | King | London | (null) | 5 |
| 8 | Callahan | Seattle | WA | 2 |
| 9 | Dodsworth | London | (null) | 5 |

As can be seen in the **ReportsTo** data column the following entries are: **(null)**, **2** and **5**, i.e. any of these entries may be the value of the **Parent Value** property. If the value of this property is not specified, or is specified as a "space", then the default value is used. By default, the value of the **Parent Value** property is set to null, i.e. the parent row for all rows will be a line where there is a **(null)** entry in the **ReportsTo** data column. In this case, this is a row with the **ID 2**. The picture below shows an example of a rendered report:

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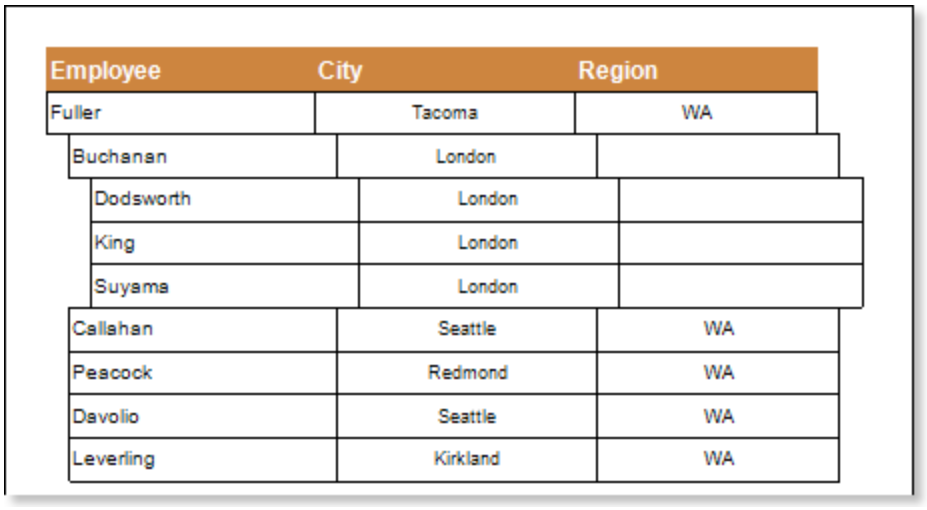

| Employee | City | Region |
|---|---|---|
| Fuller | Tacoma | WA |
| Buchanan | London | |
| Dodsworth | London | |
| King | London | |
| Suyama | London | |
| Callahan | Seattle | WA |
| Peacock | Redmond | WA |
| Davolio | Seattle | WA |
| Leverling | Kirkland | WA |

If the value of the **Parent Value** property is set to **2**, then the parent row for all rows will be a row where there is a **2** entry in the **ReportsTo** column data. In this case, these are rows with **ID 1,3,4,5,8**. The picture below shows an example of a report, where the value of the **Parent Value** property is set to the **2** value:

| Employee | City | Region |
|---|---|---|
| Buchanan | London | |
| Dodsworth | London | |
| King | London | |
| Suyama | London | |
| Callahan | Seattle | WA |
| Peacock | Redmond | WA |
| Davolio | Seattle | WA |
| Leverling | Kirkland | WA |

## 5.21.5 Indent Property

In order to visualize the hierarchy of a report you need to change a value of the **Indent** property. The value of the **Indent** property is the distance at which an entry in the hierarchy, relative to the previous level of the tree, will be moved. If the **Indent** property is set to 0, then the indent will not be performing. The picture below shows an example of a rendered hierarchical report with the indent of 0:

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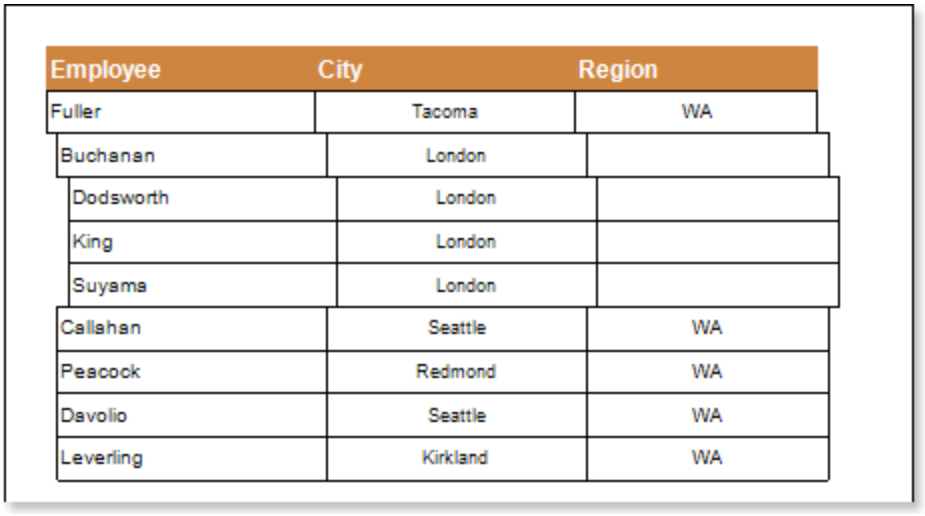
| Employee | City | Region |
|---|---|---|
| Fuller | Tacoma | WA |
| Buchanan | London | |
| Dodsworth | London | |
| King | London | |
| Suyama | London | |
| Callahan | Seattle | WA |
| Peacock | Redmond | WA |
| Davolio | Seattle | WA |
| Leverling | Kirkland | WA |

If the **Indent** property is set to any value greater than 0, for example 10, the shifting will be on 10 units of a report (centimeters, inches, one hundredth of inch, pixels). The picture below shows an example of a rendered hierarchical report with the indent of 10 units in the report:



| Employee | City | Region |
|---|---|---|
| Fuller | Tacoma | WA |
| Buchanan | London | |
| Dodsworth | London | |
| King | London | |
| Suyama | London | |
| Callahan | Seattle | WA |
| Peacock | Redmond | WA |
| Davolio | Seattle | WA |
| Leverling | Kirkland | WA |

If you want a text component, which is located in the **HierarchicalBand**, do not move, you should change the value of the **Locked** property of this text component. If the **Locked** property is set to **true**, then the text component will not be shifted. If the **Locked** property is set to **false**, then the text component will be shifted. The picture below shows an example of a rendered hierarchical report:

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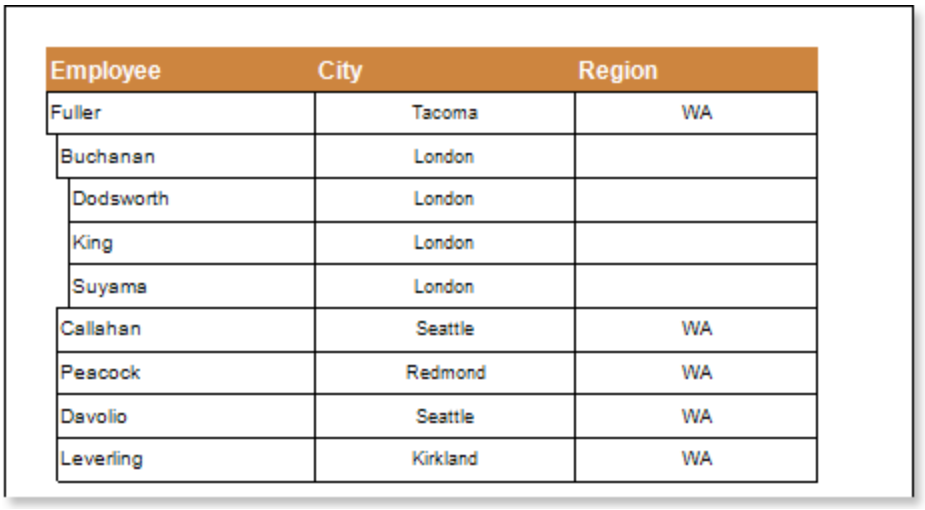


| Employee | City | Region |
|---|---|---|
| Fuller | Tacoma | WA |
| Buchanan | London | |
| Dodsworth | London | |
| King | London | |
| Suyama | London | |
| Callahan | Seattle | WA |
| Peacock | Redmond | WA |
| Davolio | Seattle | WA |
| Leverling | Kirkland | WA |

As can be seen on the picture above, the **Locked** property of the **Employee** text component is set to **false**, so the entries were shifted. And for the **City** and **Region** text components, this property is set to **true**, so the entries were not shifted.

**Important:** The parent entry is not shifted. Only subordinate entries are shifted: the lower the priority is, the further is shifting, relative to the parent entry.

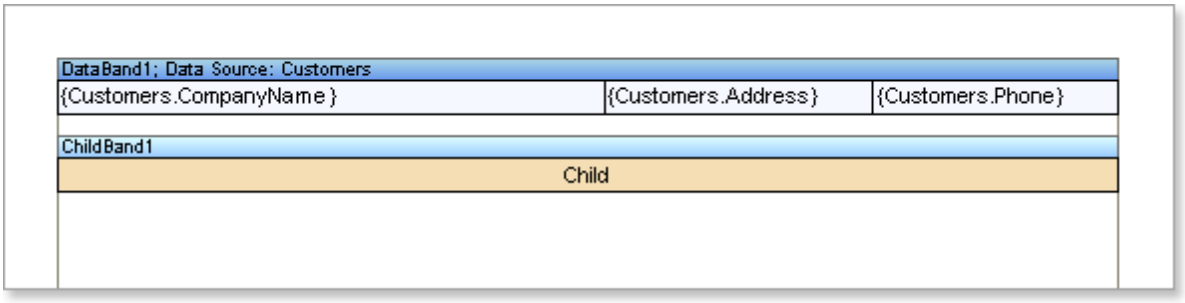
## 5.22 Child Band

The Child Band can be used in tandem with other bands. It can be placed after any band on a page, including after the Header band or the GroupHeader band. It allows the parent band to be effectively extended whilst the child can behave differently, for example having a different background color.

**Note:** The Child band can be used in combination with any other bands placed on a page.

**Using The Child Band With Data Bands**

The Child band allows you to output two bands on one data row. To use the child band in this way you would create a new report, put a Data band on the page, and then put a Child band after the Data band.




When you run the report the Child band will be printed as many times as the Data band. In other words the Child band acts as a continuation of the Data band but is still a band in its own right possessing all

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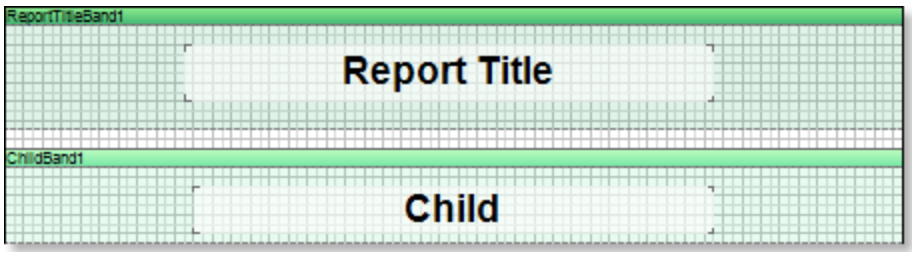
properties available with other bands.

| | | |
|---|---|---|
| Alfreds Futterkiste | Obere Str. 57 | 030-0074321 |
| Child | | |
| Ana Trujillo Emparedados y helados | Avda. de la Constitución 22 | (5) 555-4729 |
| Child | | |
| Antonio Moreno Taquería | Mataderos 2312 | (5) 555-3932 |
| Child | | |
| Around the Horn | 120 Hanover Sq. | (171) 555-7788 |
| Child | | |
| Berglunds snabbköp | Berguvsvägen 8 | 0921-12 34 65 |
| Child | | |
| Blauer See Delikatessen | Forsterstr. 57 | 0621-08460 |
| Child | | |
| Blondesddsl père et fils | 24, place Kléber | 88.60.15.31 |
| Child | | |
| Bólido Comidas preparadas | C/ Araquil, 67 | (91) 555 22 82 |
| Child | | |
| Bon app' | 12, rue des Bouchers | 91.24.45.40 |
| Child | | |
| Bottom-Dollar Markets | 23 Tsawassen Blvd. | (604) 555-4729 |
| Child | | |
| B's Beverages | Fauntleroy Circus | (171) 555-1212 |
| Child | | |
| Cactus Comidas para llevar | Cerrito 333 | (1) 135-5555 |
| Child | | |
| Centro comercial Moctezuma | Sierras de Granada 9993 | (5) 555-3392 |
| Child | | |
| Chop-suey Chinese | Hauptstr. 29 | 0452-076545 |
| Child | | |
| Comércio Mineiro | Av. dos Lusíadas, 23 | (11) 555-7647 |

## 5.22.1 Multi Line Header

The **ChildBand** is a band that is a continuation of the band, after which it is placed.




In the picture above shows the **ChildBand** is placed after the **ReportTitleBand**, respectively, it is a continuation of this **ReportTitleBand**. There are no limitations on the number of **ChildBands** placed on

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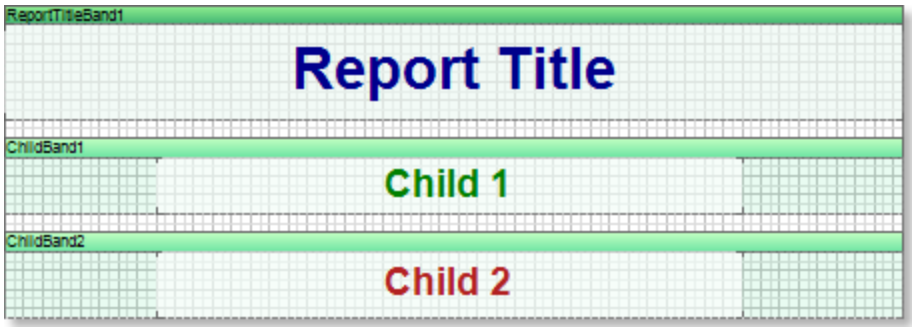
a page.



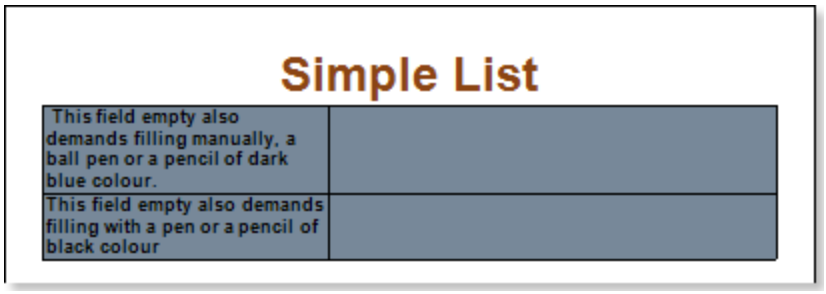

The picture above shows two **ChildBands**, which are a continuation of the **ReportTitleBand**. Suppose there is a report with the report title that consists of a few lines. If the text is placed on the **ReportTitleBand**, then visually it may look not entirely correct:

Simple List
This field empty also demands filling manually, a ball pen or a pencil of dark blue colour.
This field empty also demands filling with a pen or a pencil of black colour

Even when using the **GrowToHeight** property, then visually it cannot be convenient:

Simple List
This field empty also demands filling manually, a ball pen or a pencil of dark blue colour.
This field empty also demands filling with a pen or a pencil of black colour

Therefore, in some cases, the title of the report is better represent with the **ChildBand**:


Simple List
This field empty also demands filling manually, a ball pen or a pencil of dark blue colour.
This field empty also demands filling with a pen or a pencil of black colour

The picture below shows the report title located in the **ReportTitleBand** and two **ChildBands**.

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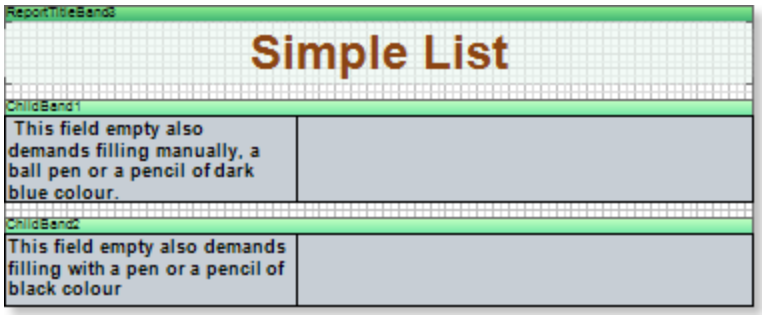
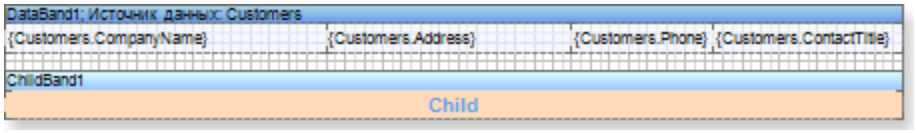

ReportTitleBand3
Simple List
ChildBand1
This field empty also demands filling manually, a ball pen or a pencil of dark blue colour.
ChildBand2
This field empty also demands filling with a pen or a pencil of black colour

## 5.22.2 Child Band and Data

How to output two bands on one data row? You can use the **ChildBand**. Create a new report. Put the **DataBand** on a page. Put the **ChildBand** under the **DataBand**.




Run a report for execution. As you can see, the **ChildBand** was printed as many times as the **DataBand** . I.e. the **ChildBand** is a continuation of the **DataBand**. But at the same time it remained to be a band, with all its properties.

| Company | Address | Phone | Contact |
|---|---|---|---|
| FISSA Fabrica Inter. Salchichas S.A. | C/ Moralzarzal, 86 | (91) 555 94 44 | Accounting Manager |
| Child | | | |
| Folies gourmandes | 184, chaussée de Tournai | 20.16.10.16 | Assistant Sales Agent |
| Child | | | |
| Folk och fä HB | Åkergatan 24 | 0695-34 67 21 | Owner |
| Child | | | |
| Frankenversand | Berliner Platz 43 | 089-0877310 | Marketing Manager |
| Child | | | |
| France restauration | 54, rue Royale | 40.32.21.21 | Marketing Manager |
| Child | | | |
| Franchi S.p.A. | Via Monte Bianco 34 | 011-4988260 | Sales Representative |
| Child | | | |

The **ChildBand** can be used not only with the **DataBand**. It can be placed after any band on a page. For example, after the **Header** band or after the **GroupHeader** band.

The **Child band** can be used in association with any band.

## 5.22.3 KeepChildTogether Property

For example, add the **ChildBand** to the **DataBand**, as the result a data row and an empty row ( **ChildBand** row) is output, visually it looks like a high line.

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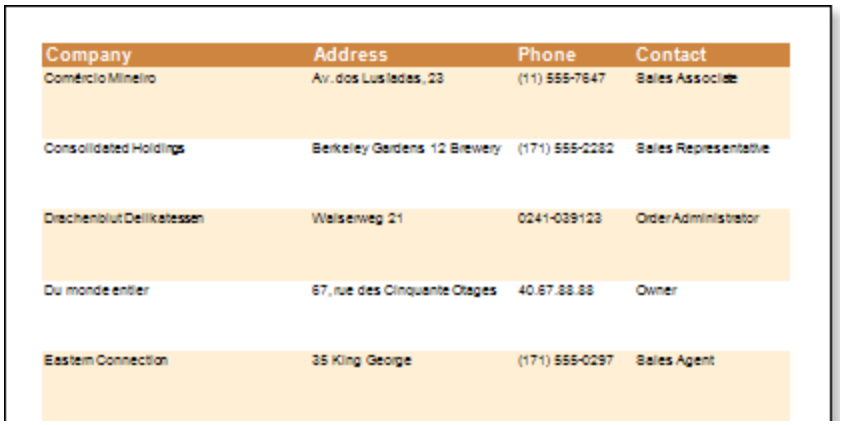
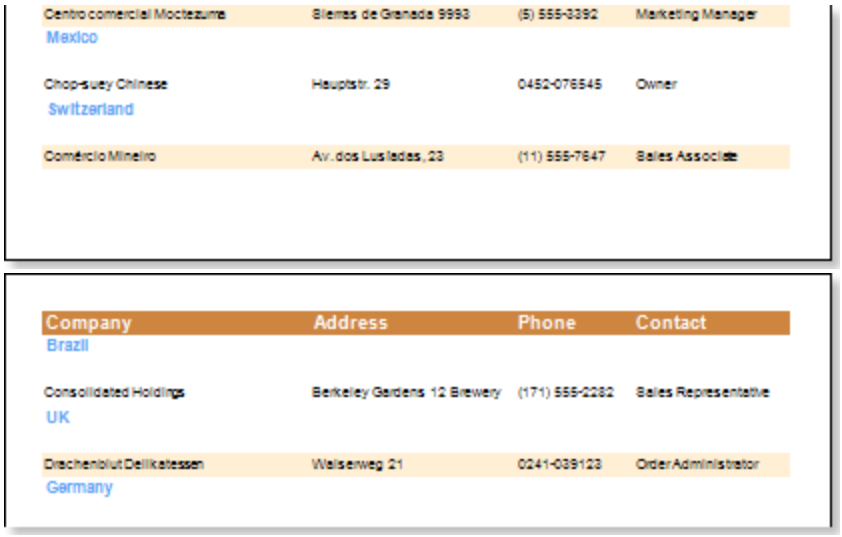


| Company | Address | Phone | Contact |
|---|---|---|---|
| Comércio Mineiro | Av. dos Lusíadas, 23 | (11) 555-7647 | Sales Associate |
| Consolidated Holdings | Berkeley Gardens 12 Brewery | (171) 555-2282 | Sales Representative |
| Drachenblut Delikatessen | Walserweg 21 | 0241-039123 | Order Administrator |
| Du monde entier | 67, rue des Cinquante Otages | 40.67.88.88 | Owner |
| Eastern Connection | 35 King George | (171) 555-0297 | Sales Agent |

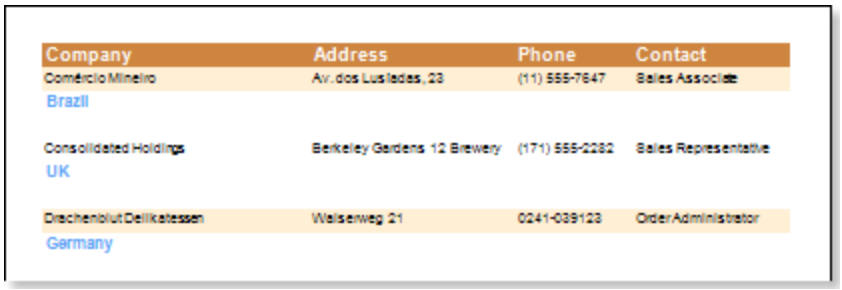
Add data to the **ChildBand**, for example **Country.**
The picture below shows that instead of empty space, the country name will be output.



| Company | Address | Phone | Contact |
|---|---|---|---|
| Centro comercial Moctezuma | Sierras de Granada 9993 | (5) 555-3392 | Marketing Manager |
| Mexico | | | |
| Chop-suey Chinese | Hauptstr. 29 | 0452-076545 | Owner |
| Switzerland | | | |
| Comércio Mineiro | Av. dos Lusíadas, 23 | (11) 555-7647 | Sales Associate |

| Company | Address | Phone | Contact |
|---|---|---|---|
| Brazil | | | |
| Consolidated Holdings | Berkeley Gardens 12 Brewery | (171) 555-2282 | Sales Representative |
| UK | | | |
| Drachenblut Delikatessen | Walserweg 21 | 0241-039123 | Order Administrator |
| Germany | | | |

So as to avoid breaking data, meaning when **Company**, **Address**, **Phone**, **Contact** remained on one page, and the second part (in our case, **Country**) was moved to another page, the **ChildBand** has the **KeepChildTogether** property.



| Company | Address | Phone | Contact |
|---|---|---|---|
| Comércio Mineiro | Av. dos Lusíadas, 23 | (11) 555-7647 | Sales Associate |
| Brazil | | | |
| Consolidated Holdings | Berkeley Gardens 12 Brewery | (171) 555-2282 | Sales Representative |
| UK | | | |
| Drachenblut Delikatessen | Walserweg 21 | 0241-039123 | Order Administrator |
| Germany | | | |

By default the property is set to **true**.

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# 5.23 Empty Band

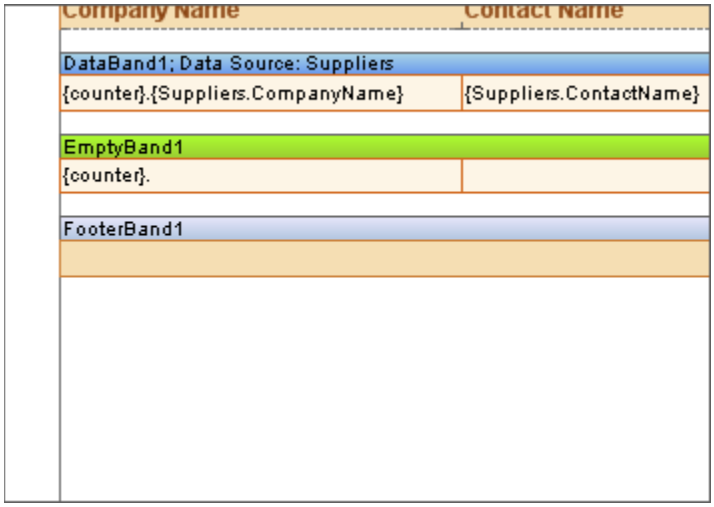
The **EmptyData** band is used to fill free space on the bottom of a page with additional empty data rows formatted to match the displayed data. This example shows a page without an **EmptyData** band:

Adding an **EmptyData** band to the same page changes the look of the empty part of the page to match the formatting of the rest of the data.

**Example**
Create a new report with borders around the text items on the data band. Then drop an Empty Data band after the Data band. If there is more than one**Data** band on the page then you should place the **EmptyData** band after the last **Data** band, but before any footer bands.

**Note:** To output Footer bands on the bottom of a page set the **PrintAtBottom** property of each **Footer band** to **true**.

Then add text objects to the empty band to match those on the Data band. The result should look something like this:




If you then run the report you will see that the empty space is replaced with formatted empty data rows:

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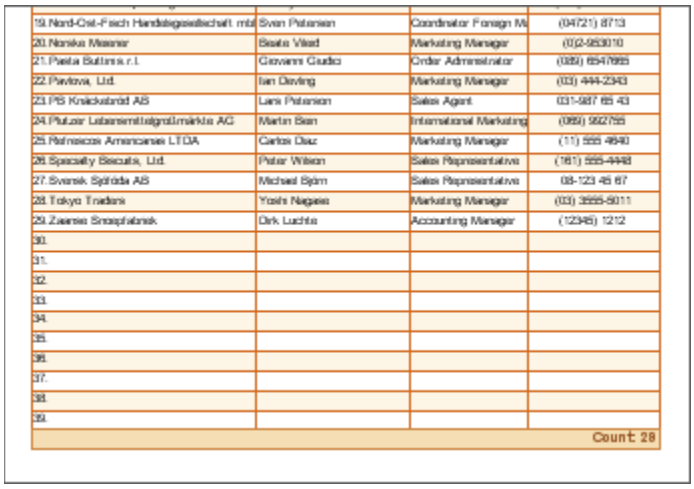
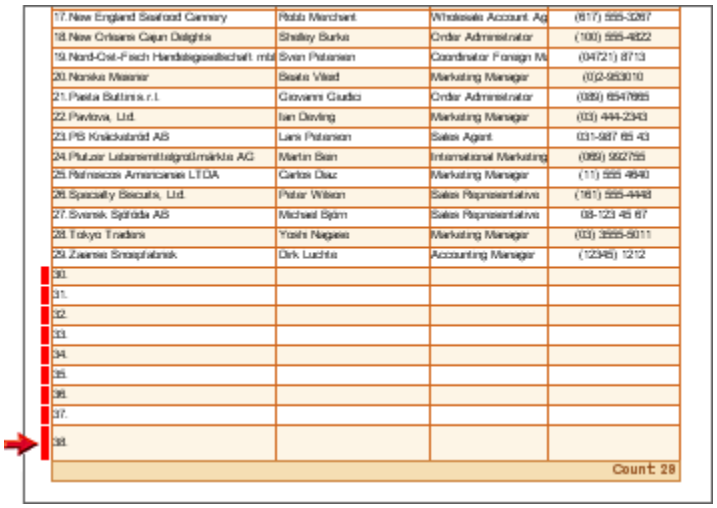

19. Nord-Ost-Fisch Handelsgesellschaft mbH Sven Petersen Coordinator Foreign M (04721) 8713
20. Norske Meiner Beate Vileid Marketing Manager (0)2-953010
21. Pasta Buttinis r.l. Giovanni Giudici Order Administrator (089) 6547665
22. Pavlova, Ltd. Ian Devling Marketing Manager (03) 444-2343
23. PB Knäckebröd AB Lars Peterson Sales Agent 031-987 65 43
24. Plutzer Lebensmittelgroßmärkte AG Martin Bein International Marketing (069) 992755
25. Refrescos Americanas LTDA Carlos Diaz Marketing Manager (11) 555 4640
26. Specialty Biscuits, Ltd. Peter Wilson Sales Representative (161) 555-4448
27. Svensk Sjöföda AB Michael Björn Sales Representative 08-123 45 67
28. Tokyo Traders Yoshi Nagase Marketing Manager (03) 3555-5011
29. Zaanse Snoepfabriek Dirk Luchte Accounting Manager (12345) 1212
30.
31.
32.
33.
34.
35.
36.
37.
38.
39.
Count: 28

## 5.23.1 Empty Band Modes

The **Empty** band has only one special property - **SizeMode**. This property indicates the behavior of the Empty Band on the bottom of a page. There are 4 values of the property: **IncreaseLastRow**, **DecreaseLastRow**, **AlignFooterToBottom**, **AlignFooterToTop**.

The **IncreaseLastRow** indicates that if, when filling the page by an Empty band, there is a free space to partially output an Empty Band, then it is possible to increase the last row. The picture below shows this.


17. New England Seafood Cannery Robb Merchant Wholesale Account Ag (617) 555-3267
18. New Orleans Cajun Delights Shelley Burke Order Administrator (100) 555-4822
19. Nord-Ost-Fisch Handelsgesellschaft mbH Sven Petersen Coordinator Foreign M (04721) 8713
20. Norske Meiner Beate Vileid Marketing Manager (0)2-953010
21. Pasta Buttinis r.l. Giovanni Giudici Order Administrator (089) 6547665
22. Pavlova, Ltd. Ian Devling Marketing Manager (03) 444-2343
23. PB Knäckebröd AB Lars Peterson Sales Agent 031-987 65 43
24. Plutzer Lebensmittelgroßmärkte AG Martin Bein International Marketing (069) 992755
25. Refrescos Americanas LTDA Carlos Diaz Marketing Manager (11) 555 4640
26. Specialty Biscuits, Ltd. Peter Wilson Sales Representative (161) 555-4448
27. Svensk Sjöföda AB Michael Björn Sales Representative 08-123 45 67
28. Tokyo Traders Yoshi Nagase Marketing Manager (03) 3555-5011
29. Zaanse Snoepfabriek Dirk Luchte Accounting Manager (12345) 1212
30.
31.
32.
33.
34.
35.
36.
37.
38.
Count: 28

**DecreaseLastRow**. The last row of the **Empty Band** will be decreased by height. The picture below shows this.

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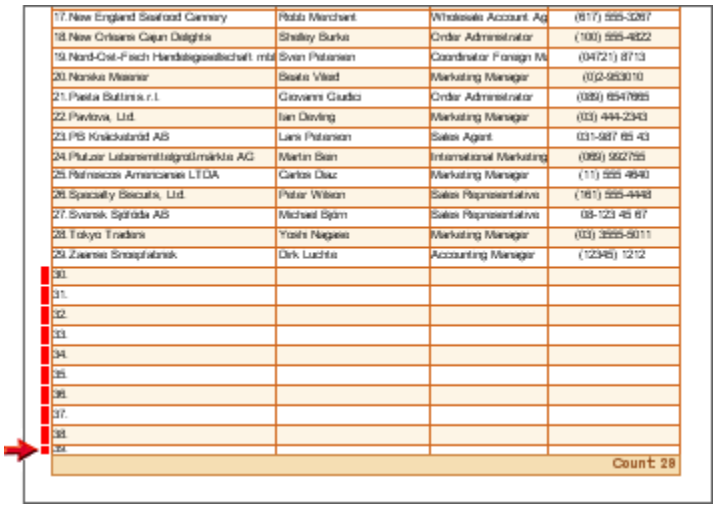
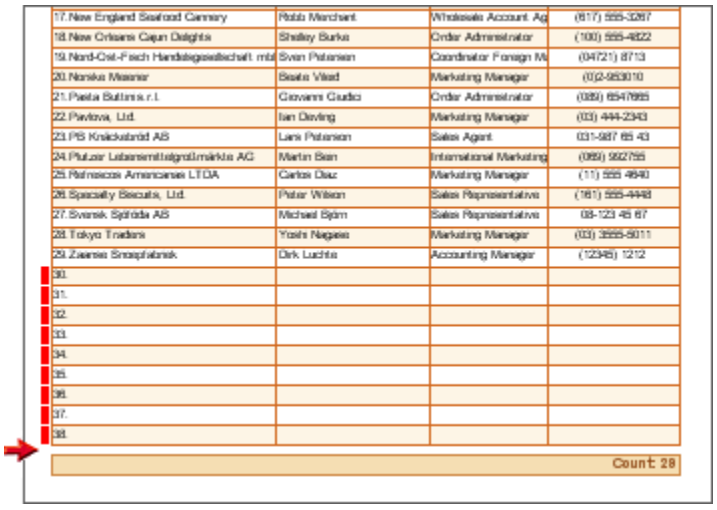



**AlignFooterToBottom**. If there is no free space for the **Empty Band** then this band is not output. The picture below shows this.




**AlignFooterToTop**. (this is the default value of the **SizeMode** property). The Footer Bands will be output on the bottom (the **PrintAtBottom** = true) and moved to top to fill the free space of the Empty Band. The picture below shows this.

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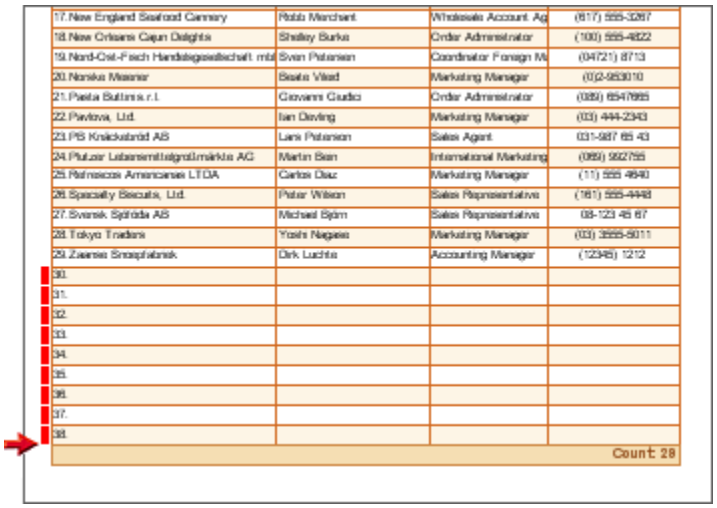

| | | | |
|---|---|---|---|
| 17. New England Seafood Cannery | Robb Merchant | Wholesale Account Ag | (617) 555-3267 |
| 18. New Orleans Cajun Delights | Shelley Burke | Order Administrator | (100) 555-4822 |
| 19. Nord-Ost-Fisch Handelsgesellschaft mbH | Sven Petersen | Coordinator Foreign M | (04721) 8713 |
| 20. Norske Meieri | Beate Vileid | Marketing Manager | (0)2-953010 |
| 21. Pasta Buttini s.r.l. | Giovanni Giudici | Order Administrator | (089) 6547665 |
| 22. Pavlova, Ltd. | Ian Devling | Marketing Manager | (03) 444-2343 |
| 23. PB Knäckebröd AB | Lars Peterson | Sales Agent | 031-987 65 43 |
| 24. Plutzer Lebensmittelgroßmärkte AG | Martin Bein | International Marketing | (069) 992755 |
| 25. Refrescos Americanas LTDA | Carlos Diaz | Marketing Manager | (11) 555 4640 |
| 26. Specialty Biscuits, Ltd. | Peter Wilson | Sales Representative | (161) 555-4448 |
| 27. Svensk Sjöföda AB | Michael Björn | Sales Representative | 08-123 45 67 |
| 28. Tokyo Traders | Yoshi Nagase | Marketing Manager | (03) 3555-5011 |
| 29. Zaanse Snoepfabriek | Dirk Luchte | Accounting Manager | (12345) 1212 |
| 30. | | | |
| 31. | | | |
| 32. | | | |
| 33. | | | |
| 34. | | | |
| 35. | | | |
| 36. | | | |
| 37. | | | |
| 38. | | | |
| | | | Count: 28 |

## 5.24 Watermarks

Sometimes it is required to output watermark on a page. Watermark is an inscription or an image that is placed under or over elements of a page. Stimulsoft Reports has three modes to output watermarks: the **Watermark** of a page, the **Overlay** band and direct placing on a page.

### 5.24.1 Watermark Property

The **Watermark** property allows user to output one image and one inscription on the background or foreground. The **Watermark** property has sub-properties to output watermarks.

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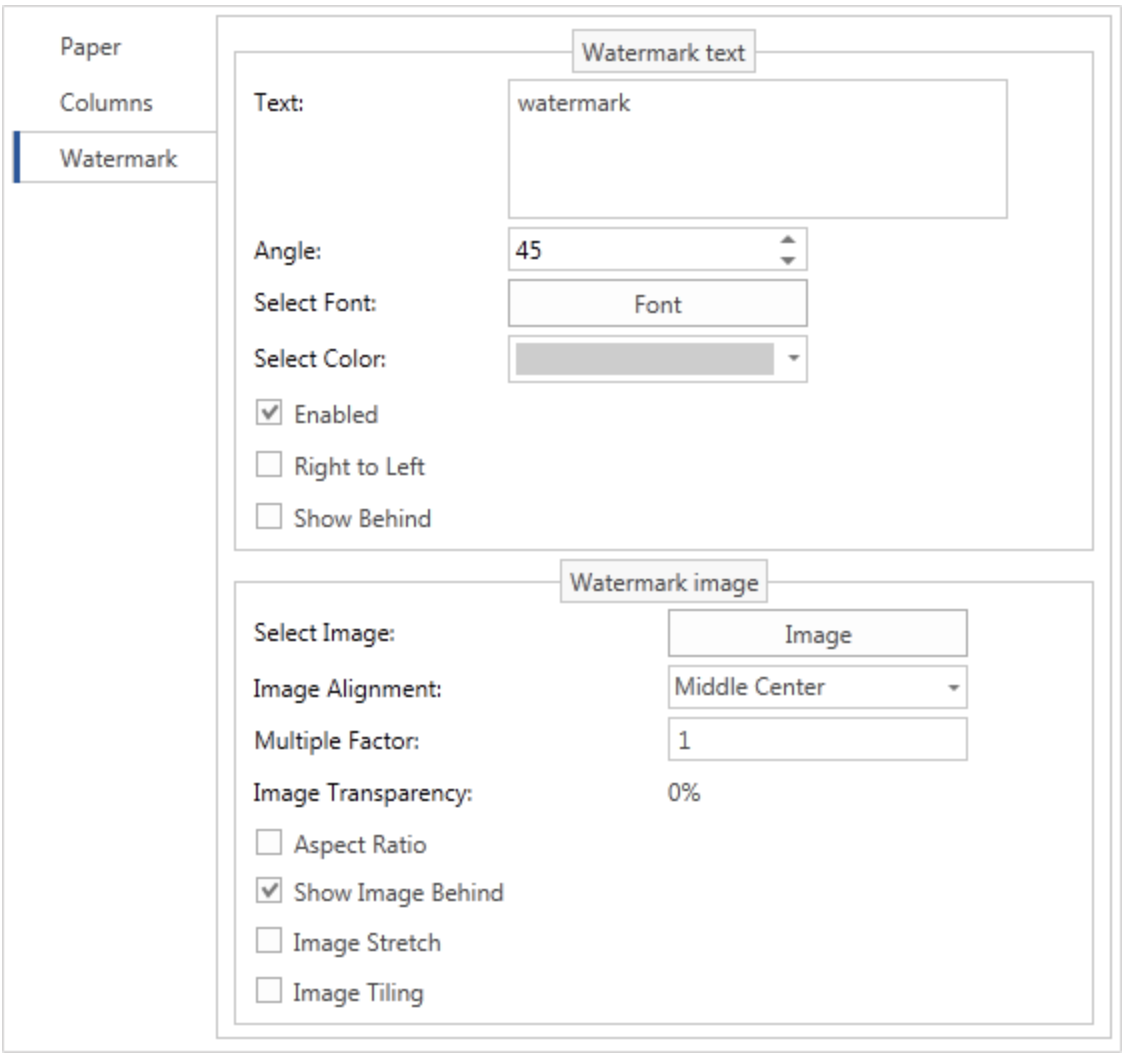


On the table below Text properties for watermark are described.

| Properties | Description |
|---|---|
| **Text** | A text that is used to output a watermark |
| **Text Brush** | A brush to output a watermark |
| **Font** | A font that is used to output a watermark |
| **Angle** | An angle to rotate a watermark |
| **ShowBehind** | Show text of a watermark on the background or foreground |

An example how properties can be used is shown on the picture below.

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On the table below Image properties for watermark are described.

| Properties | Description |
|---|---|
| **Image** | An image to output |
| **ImageAlignment** | This property is used to align an image on a page |
| **ImageMultipleFactor** | A multiplier that is used to change image size |
| **AspectRatio** | Saves proportions of an image |
| **ImageTiling** | If to set this property to **true**, then it will be tiled throughout a page |
| **ImageTransparency** | This property is used to set image transparency |
| **ImageStretch** | Stretches an image on a page |
| **ShowImageBehind** | Shows an image of a watermark on the background or foreground |

Also there is another **Enabled** property. This property enables or disables watermark output.

### 5.24.2 Overlay Band

The **OverlayBand** is used to output text, images, primitives and other data.

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The **OverlayBand** is placed on the top of all other bands. The **Watermark**, for example, is placed in the foreground or in the background. The advantage of the **OverlayBand** over **Watermark** is that it is not a page element but a band which has properties of bands.
**Watermark** is either printed on all pages or not printed. The **OverlayBand** band allows selecting 7 ways of printing. In **Watermark,** for the same operation script should be printed.

The **PrintOn** property has 7 values:

- **All page;**
- **ExceptFirstPage;**
- **ExceptLastPage;**
- **ExceptFirstAndLastPage;**
- **OnlyFirstPage;**
- **OnlyLastPage;**
- **OnlyFirstAndLastPage.**

### 5.24.2.1 Vertical Alignment Property

The **VerticalAlignment** property is used to define the place of the "watermark" inscription which is output using the **OverlayBand** band. This property may have three values:

**Top**. The **OverlayBand** will be output on the top of a rendered report before the page header and the page header.

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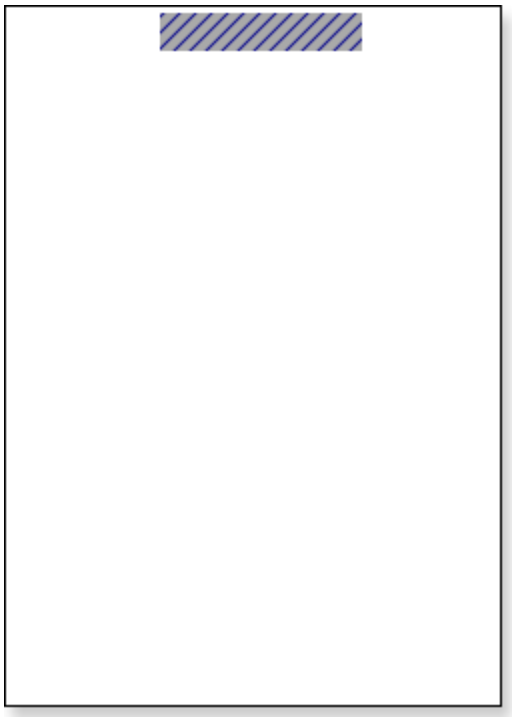
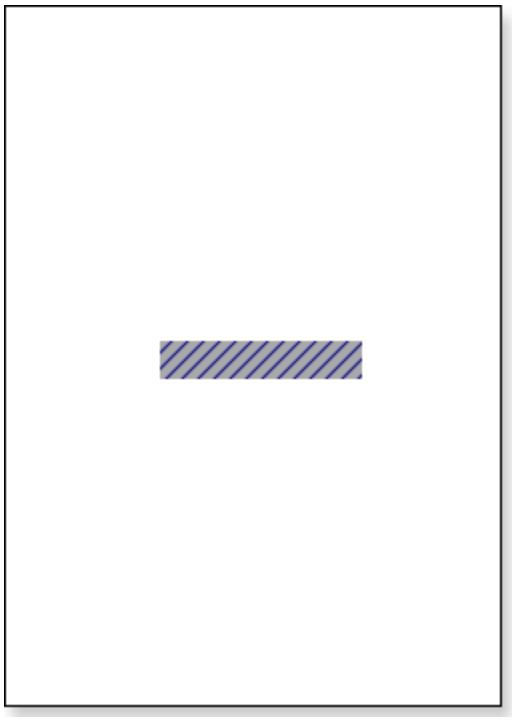


**Center**. The **OverlayBand** will be output on the center of a rendered report and in front of data placed on the page.



**Bottom**. The **OverlayBand** will be output on the bottom of a page of a report and after the page footer.

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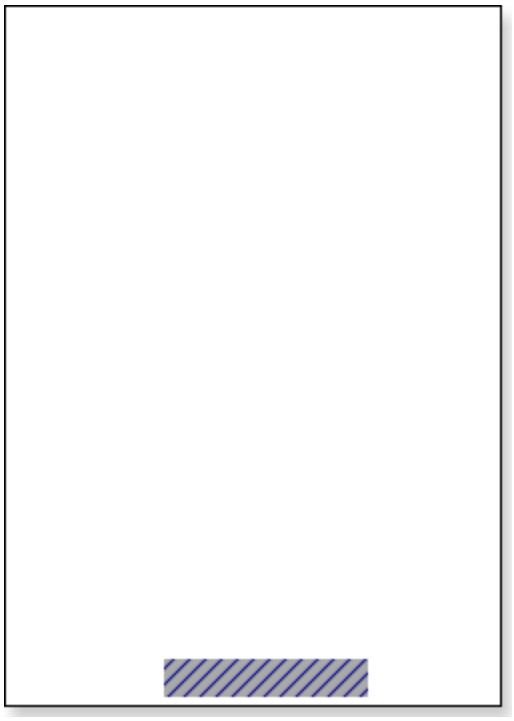
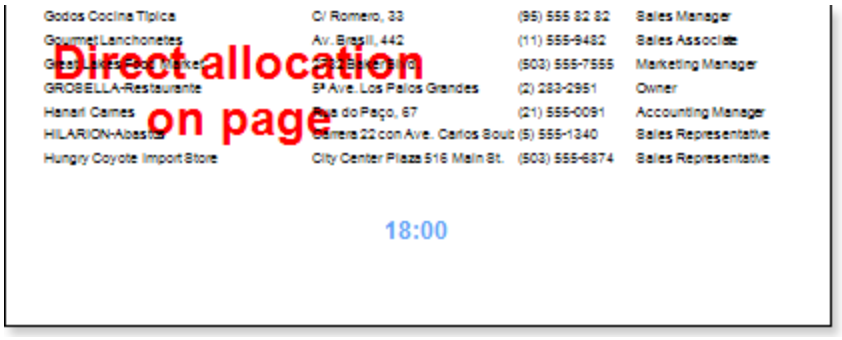


## 5.24.3 Direct Allocation on Page

One of the options for placement of the "watermark" inscription is a direct placement on the page. This means that the direct placement of any component, which will be the "watermark" inscription on a page of a report template.




The picture above shows the "watermark" by means of the direct placement a text component on a template of a page.
Direct placement on a page allows showing an inscription on the background but at any of the working space.
There is the **Linked** property. This **Linked** property may have two values: **true** and **false**.
If the property is set to **false**, then the relation with "owner" is not fixed. In other words the "owner" is the report template item on which the **TextBox** component is placed.

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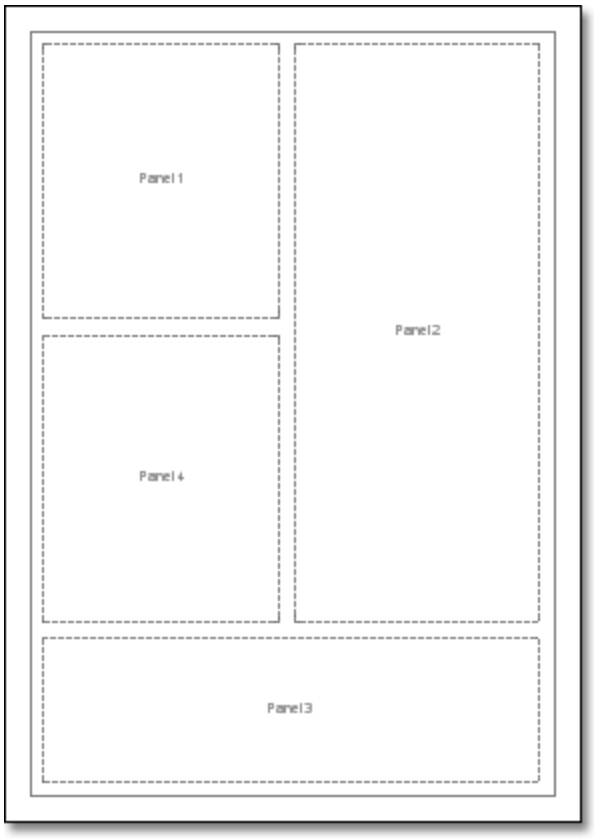
If the property is set to **true**, then the relation with "owner" is fixed. In other words the **TextBox** component may change the position but it will be referred to the item on what it is fixed.

## 5.25 Panels

Panel is a rectangular region that may contain other components including bands. If to move a panel then all components in it are moved too. The panel can be placed both on a band and on a page. This gives unique abilities in report creation.




### 5.25.1 Placing Bands on Panel

A panel can be placed on  a page, on a band, and on another panel. Almost all components of a report can be paced on a panel. But not all bands can be placed on a panel. A table below shows which bands can placed.

| Band name | It is possible to place a band on a panel |
|---|---|
| ReportTitle | No |
| ReportSummary | No |

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| | |
|---|---|
| PageHeader | No |
| PageFooter | No |
| GroupHeader | Yes |
| GroupFooter | Yes |
| Data | Yes |
| Hierarchical Data | Yes |
| Child | Yes |
| Header | Yes |
| Footer | Yes |

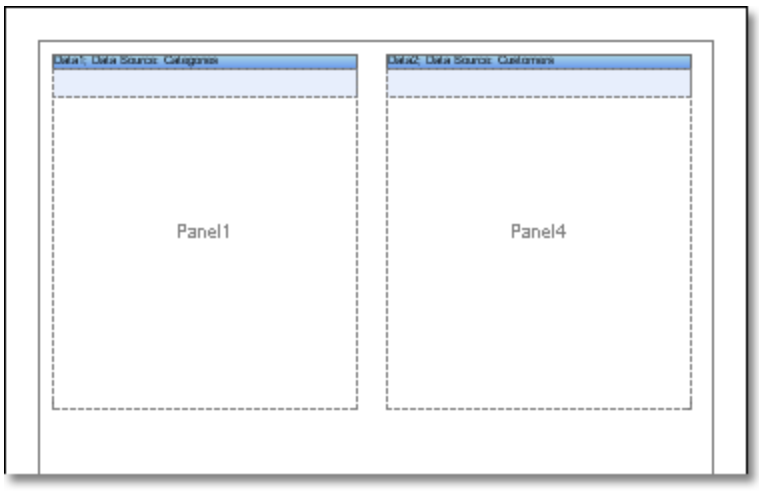
As seen, report bands and page bands cannot be placed on a report. All other bands can be placed on a panel.

## 5.25.2 Placing Panels

There are three ways of placing panels: on a page, on a band and in another panel. The below topics describes all these variants.

### 5.25.2.1 Placing Panels on Page

It is the first way. Basically it is used as organization some independent streams of printing. Panels can be places on any part of a page. Each panel is a small page. So it is allowed placing some small pages with bands and components on one page. So it is possible to render a lot of complex reports.




**Notice:** Number of panels on one page is unlimited.

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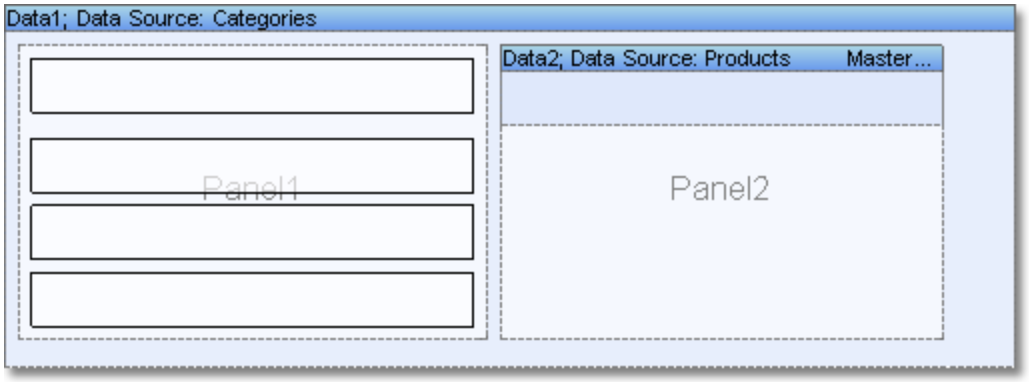
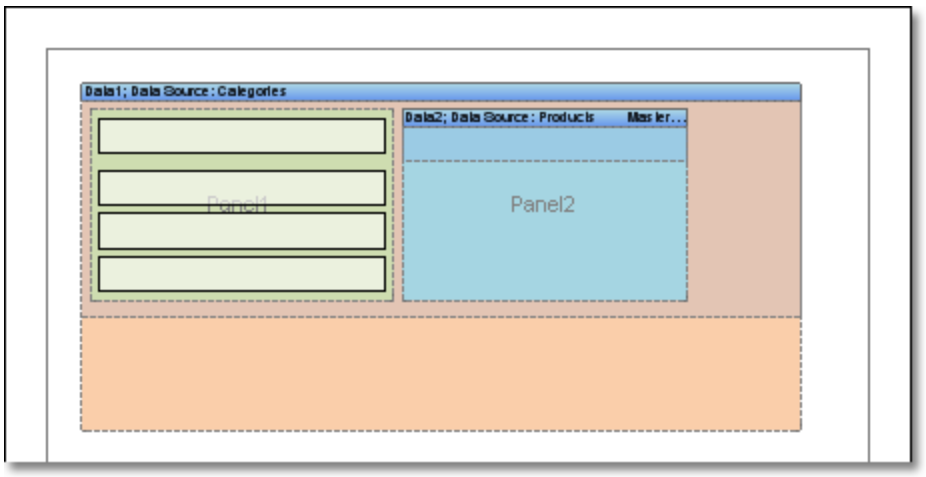
#### 5.25.2.2 Placing Panels on Band

The second way is when the panel in placed on a band. This variant is used both for grouping simple components on a panel and to output bands on a band. This allows rendering very complex reports. But it is important to know that the report template can be difficult in "reading".




#### 5.25.2.3 Placing Panels on Panel

The third way – when a panel is placed on another panel. This variant is combination of two previous ones. It is very important to know that panels insertion should be used very carefully. Number of insertions in unlimited but such report will not have good look.




### 5.25.3 Side-by-Side Reports

**Side-by-side** report is a report in what containers can help to speed up report creation. Two lists of rows are output simultaneously in this report. Both lists are independent from each other. Usually it is necessary to use the **Sub report** component to create such a report. But it is much easier to create a report with panels.

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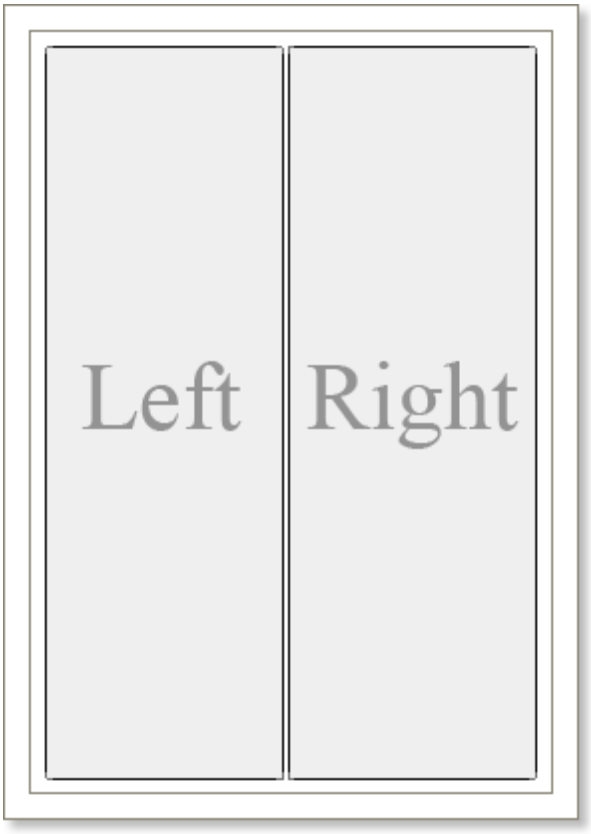


How to build a **Side-by-Side** report. Put two containers on a page. Set the **DockStyle** property of one component to **Left**. Set the **DockStyle** property of the second component to **Right**. Docking component is necessary to take all space on a page by the height. In cases it should not be done. Leave some space between lists to separate them. Put two bands on the first panel: the **Header** band and the **Data** band. The first list will output using these bands. Do the same in the second container. As a result two lists will be output on one page simultaneously.

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Companie s

| Company | Phone |
|---|---|
| Hungry Owl All-Night Grocer | 2967 542 |
| Island Trading | (198) 555-8888 |
| Königlich Essen | 0555-09876 |
| La corne d'abondance | 30.59.84.10 |
| La maison d'Asie | 61.77.61.10 |
| Laughing Bacchus Wine Cellars | (604) 555-3392 |
| Lazy K Kountry Store | (509) 555-7969 |
| Lehmanns Marktstand | 069-0245984 |
| Let's Stop N Shop | (415) 555-5938 |
| LILA-Supermercado | (9) 331-6954 |
| Lilly-O-Delicatessen | (8) 34-56-12 |
| Lonesome Pine Restaurant | (503) 555-9573 |
| Magazzini Alimentari Riuniti | 035-640230 |
| Maison Dewey | (02) 201 24 67 |
| Mère Paillarde | (514) 555-8054 |
| Morgenstern Gesundkost | 0342-023076 |
| North/South | (171) 555-7733 |
| Oceano Atlantico Ltda. | (1) 135-5555 |
| Old World Delicatessen | (907) 555-7584 |
| Ottilies Käseladen | 0221-0644327 |
| Paris spécialités | (1) 42.34.2200 |
| Pericles Comidas clásicas | (5) 552-3745 |
| Piccolo und mehr | 0662-9732 |
| Princesa Isabel Vinhos | (1) 356-5634 |
| Que Delícia | (21) 555-4252 |
| Queen Cozinha | (11) 555-1189 |
| QUICK-Stop | 0372-035188 |
| Rancho grande | (1) 123-5555 |
| Rattlesnake Canyon Grocery | (505) 555-5939 |
| Reggiani Caseifici | 0522-556721 |
| Ricardo Adocicados | (21) 555-3412 |
| Richter Supermarkt | 0897-034214 |
| Romero y tomillo | (91) 745 6200 |
| Save-a-lot Markets | (208) 555-8097 |
| Seven Seas Imports | (171) 555-1717 |
| Simons bistro | 31 1234 56 |
| Spécialités du monde | (1) 47.55.6010 |
| Split Rail Beer & Ale | (307) 555-4680 |
| Suprêmes délices | (071) 23 67 22 20 |
| The Big Cheese | (503) 555-3612 |
| The Cracker Box | (406) 555-5834 |

Produots

| Produot | Price |
|---|---|
| Ipoh Coffee | 46,00p. |
| Jack's New England Clam Chowder | 9,65p. |
| Konbu | 6,00p. |
| Lakkalikööri | 18,00p. |
| Laughing Lumberjack Lager | 14,00p. |
| Longlife Tofu | 10,00p. |
| Louisiana Fiery Hot Pepper Sauce | 21,05p. |
| Louisiana Hot Spiced Okra | 17,00p. |
| Manjimup Dried Apples | 53,00p. |
| Mascarpone Fabioli | 32,00p. |
| Maxilaku | 20,00p. |
| Mishi Kobe Niku | 97,00p. |
| Mozzarella di Giovanni | 34,80p. |
| Nord-Ost Matjeshering | 25,89p. |
| Northwoods Cranberry Sauce | 40,00p. |
| Nuuk Cahuhi-Nougat Cream | 14,00p. |
| Original Frankfurter grüne Soße | 13,00p. |
| Outback Lager | 15,00p. |
| Pâte chinoise | 24,00p. |
| Pavlova | 17,45p. |
| Perth Pasties | 32,80p. |
| Queso Cabrales | 21,00p. |
| Queso Manchego La Pastora | 38,00p. |
| Raclette Courdavault | 55,00p. |
| Ravioli Angelo | 19,50p. |
| Rhönbräu Klosterbier | 7,75p. |
| Röd Kaviar | 15,00p. |
| Rogede sild | 9,50p. |
| Rössle Sauerkraut | 45,60p. |
| Saarquarch Ale | 14,00p. |
| Schoggi Schokolade | 43,90p. |

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Page 2 of 3

## 5.25.4 Multiple Tables on One Page

Sometimes it is required to output multiple tables on a page and, what is very important, to output them on different parts of a page. Such report can be rendered using the **Sub Report**. But it is much easier to do this using panels. All it is required to do is to place panels and put band on them. On the picture below a sample of such a report is shown.

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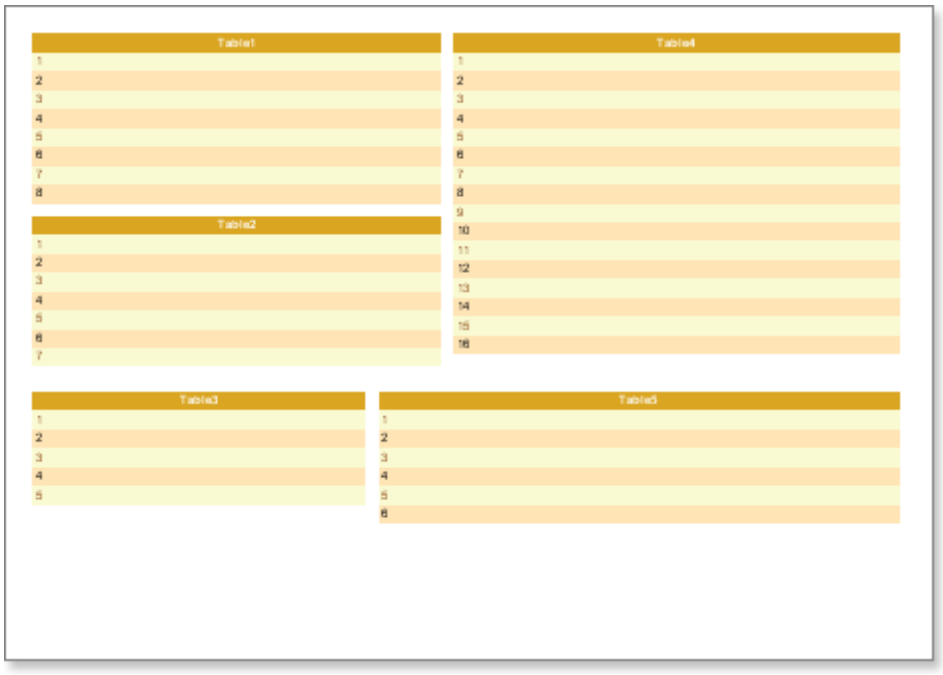

## 5.25.5 Cloning

The unique Clone component is included into Stimulsoft Reports. This component is used to clone parts of a report into a required part of a report. Cloning can be used only in panels.

**Notice:** The Clone component can work with the Panel component.

How it works? Put a panel on a page. Put bands to output lists. Place a panel on the left part of a page. Place a **Clone** component on the right side of a page. Then, in the **Clone** component designer, indicate the panel that should be cloned. In our case it is the panel that was created on a page.

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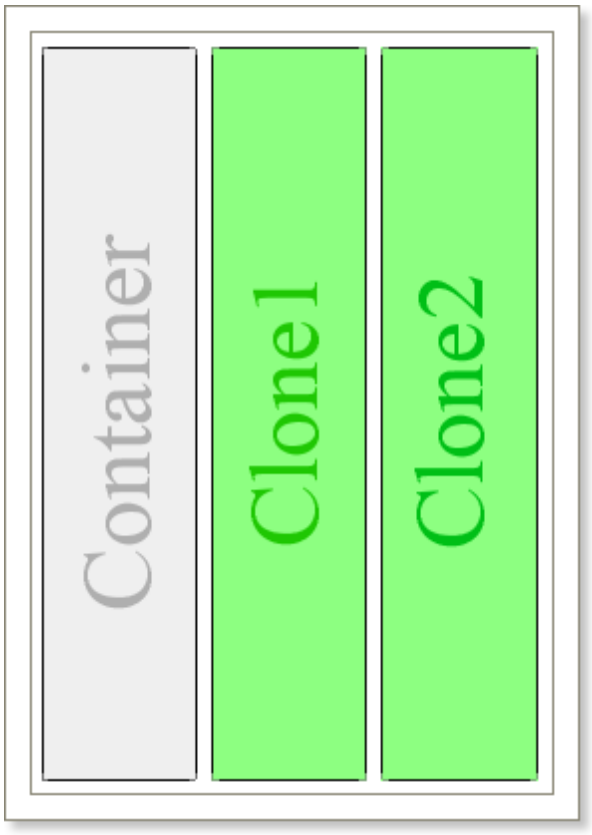


Run a report. The panel will be rendered first. The list will be output on the left side of a page. Then the list will be continued to output on the place where the **Clone** component is placed. The **Clone** component clones all bands of the panel. Using the **Clone** component it is possible to render complex reports with columns. The first column is output using the panel and other columns - using the **Clone** component. It is important to consider the order of placing Clone components on a page.

**Notice:** Panel components and their clones will output in order of placing components on a page.

## 5.26 Cross-Tab

The **Cross table** is a special component that is used to process, group and summarize data from the data source. The result is represented as a table. The **Cross table** can be placed both directly on a page or on a **Data** band. If a table that is created as a result of a **cross table** rendering does not fit in the one page, then can be printed on some pages. The component has many properties and settings.

### 5.26.1 Data Source Property

Data are the base for cross table rendering. So the cross table rendering should be started from selecting the data source. The data source can be selected using the Data source.

It is necessary to specify the data source that will be used. There are several ways how to do this. The

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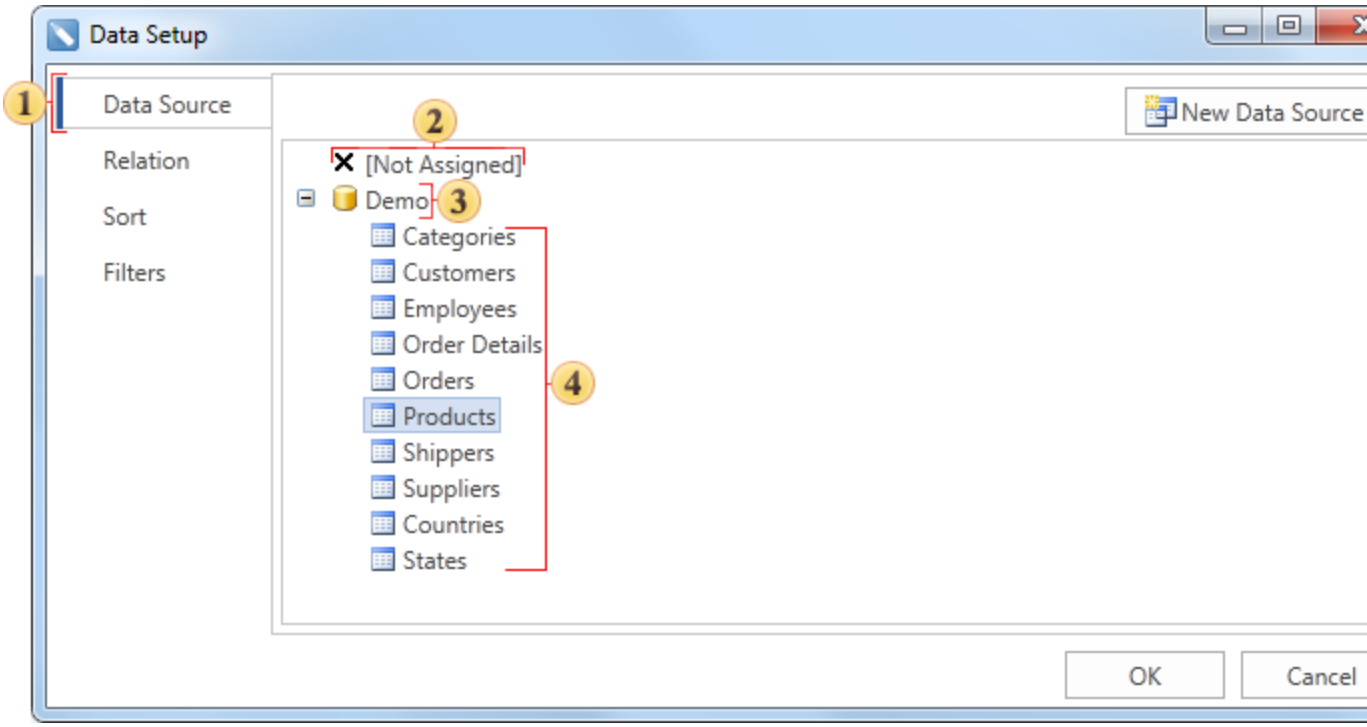
first way. You may use either the **DataSource** property or the Table editor.

A data source can be selected by clicking the first tab of the Data band editor. All data sources are grouped in categories. Each category corresponds to one connection with data in the report data dictionary.




1 The tab to select the data source;
2 Select this node if you do not need to specify the data source;
3 The "Demo" data category;
4 The "Demo" data source category.

The second way. The data source can be selected using the cross table editor. It can be called by double click on the cross table.

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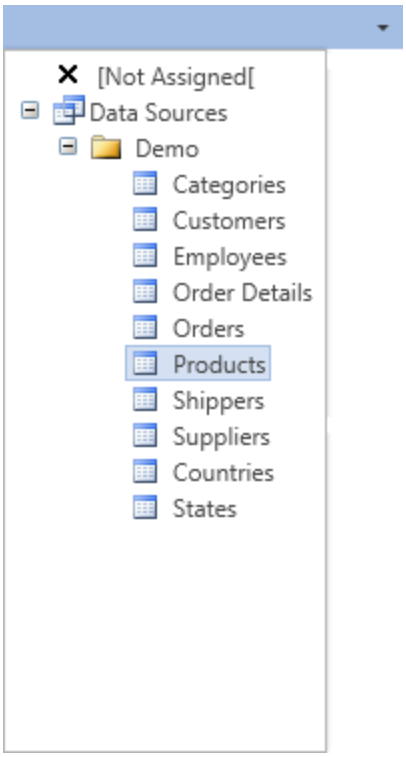


## 5.26.2 Cross Table Items

After selecting the data source you need to specify the following items: columns, rows, and cells for summation.

### 5.26.2.1 Columns

On a picture below you may see how the columns are positioned on a table.

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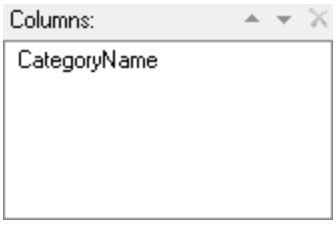
Columns

| Products | CategoryName | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Country | Beverages | Condiments | Confections | Dairy Products | Grains/Cereals | Meat/Poultry | Produce | Seafood | Total |
| Australia | 15 | 24 | 29 | | 38 | | 20 | 42 | 168 |
| Brazil | 20 | | | | | | | | 20 |
| Canada | | 113 | 17 | | | 136 | | | 266 |
| Denmark | | | | | | | | 100 | 100 |
| Finland | 57 | | 75 | | | | | | 132 |
| France | 86 | | | 98 | | | | 62 | 246 |
| Germany | 125 | 32 | 140 | | 22 | | 26 | 10 | 355 |
| Italy | | | | 23 | 57 | | | | 80 |
| Japan | | 39 | | | | 29 | 39 | 55 | 162 |
| Netherlands | | | 51 | | | | | | 51 |
| Norway | | | | 164 | | | | | 164 |
| Singapore | 17 | 27 | | | 26 | | | | 70 |
| Spain | | | | 108 | | | | | 108 |
| Sweden | | | | | 165 | | | 224 | 389 |
| UK | 56 | 13 | 74 | | | | | | 143 |
| USA | 183 | 259 | | | | | 15 | 208 | 665 |
| Total | 559 | 507 | 386 | 393 | 308 | 165 | 100 | 701 | 3119 |

It is allowed to specify one or several columns at once. For example, in cross table only one column is specified:




As a result we get grouping by values of this column:

| CategoryName | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Beverages | Condiments | Confections | Dairy Products | Grains/Cereals | Meat/Poultry | Produce | Seafood | Total |

If to specify more than one column:

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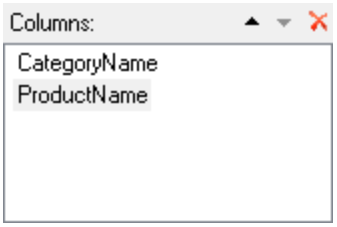
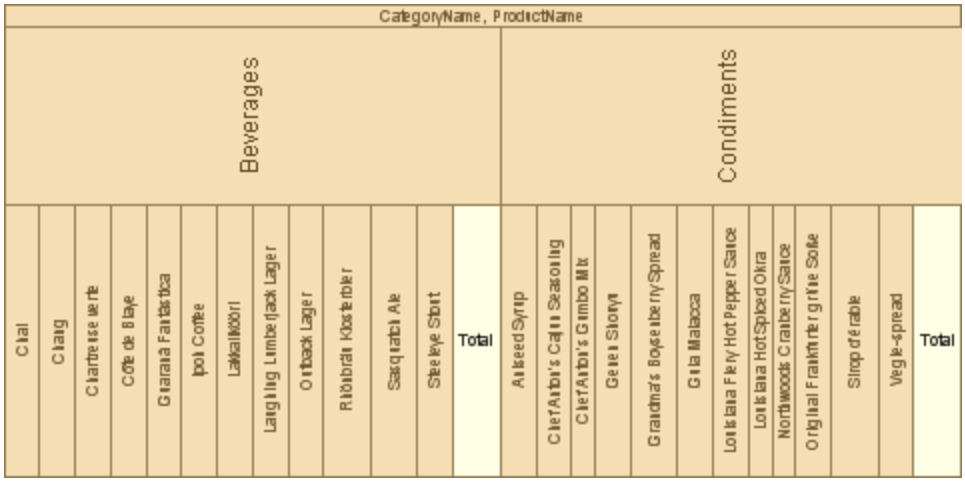
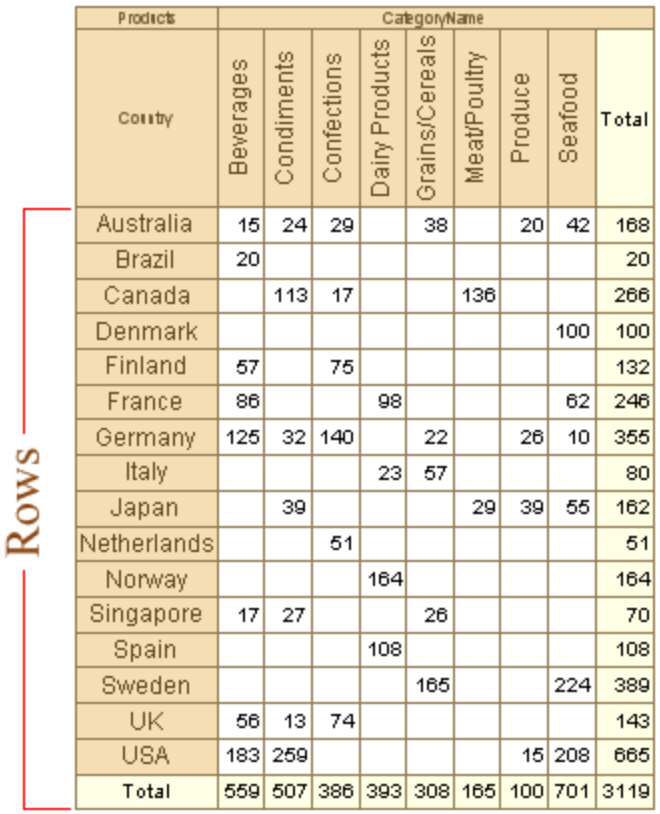



Grouping is output by values of two columns. Values of the first column are output first. Then the value from the second column is output:



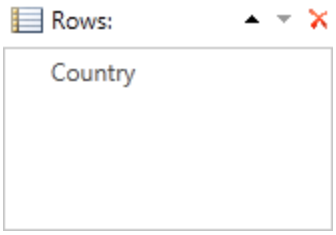

### 5.26.2.2 Rows

On a picture below you may see how the rows are positioned on a table.




| Products | CategoryName | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Country | Beverages | Condiments | Confections | Dairy Products | Grains/Cereals | Meat/Poultry | Produce | Seafood | Total |
| Australia | 15 | 24 | 29 | | 38 | | 20 | 42 | 168 |
| Brazil | 20 | | | | | | | | 20 |
| Canada | | 113 | 17 | | | 136 | | | 266 |
| Denmark | | | | | | | | 100 | 100 |
| Finland | 57 | | 75 | | | | | | 132 |
| France | 86 | | | 98 | | | | 62 | 246 |
| Germany | 125 | 32 | 140 | | 22 | | 26 | 10 | 355 |
| Italy | | | | 23 | 57 | | | | 80 |
| Japan | | 39 | | | | 29 | 39 | 55 | 162 |
| Netherlands | | | 51 | | | | | | 51 |
| Norway | | | | 164 | | | | | 164 |
| Singapore | 17 | 27 | | | 26 | | | | 70 |
| Spain | | | | 108 | | | | | 108 |
| Sweden | | | | | 165 | | | 224 | 389 |
| UK | 56 | 13 | 74 | | | | | | 143 |
| USA | 183 | 259 | | | | | 15 | 208 | 665 |
| Total | 559 | 507 | 386 | 393 | 308 | 165 | 100 | 701 | 3119 |

Grouping is done only by its values for one row:




Get the result shown on a picture below. All values of the specified row are represented in one level.

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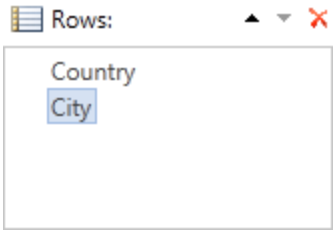
| Country |
| --- |
| Australia |
| Brazil |
| Canada |
| Denmark |
| Finland |
| France |
| Germany |
| Italy |
| Japan |
| Netherlands |
| Norway |
| Singapore |
| Spain |
| Sweden |
| UK |
| USA |
| **Total** |

Specify two rows:




A cross table is grouped in two levels vertically:

| Country | City |
| --- | --- |
| Australia | Melbourne |
| | Sydney |
| | **Total** |
| Brazil | Sao Paulo |
| | **Total** |
| Canada | Montréal |
| | Ste-Hyacinthe |
| | **Total** |

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In a cross table you may not specify columns or rows. For example, if columns are not specified, then grouping will be done by rows. For some reports this property is very important for a cross table. The picture below shows one those reports:

| CategoryName | CompanyName | UnitsInStock |
|---|---|---|
| Beverages | Aux joyeux ecclésiastiques | 281,5 |
| | Bigfoot Breweries | 46 |
| | Exotic Liquids | 37 |
| | Karkki Oy | 18 |
| | Leka Trading | 46 |
| | Pavlova, Ltd. | 15 |
| | Plutzer Lebensmittelgroßmärkte AG | 7,75 |
| | Refrescos Americanas LTDA | 4,5 |
| | Total | 455,75 |
| Condiments | Exotic Liquids | 10 |
| | Forêts d'érables | 28,5 |
| | Grandma Kelly's Homestead | 65 |
| | Leka Trading | 19,45 |
| | Mayumi's | 15,5 |
| | New Orleans Cajun Delights | 81,40 |
| | Pavlova, Ltd. | 43,9 |
| | Plutzer Lebensmittelgroßmärkte AG | 13 |
| | Total | 276,75 |

### 5.26.2.3 Summary Cells

Summary cells are the elements of a cross table, which set rules for cells formatting on intersection of columns and rows of a summary cell. On a picture below the structure of a simplest cross table is represented.

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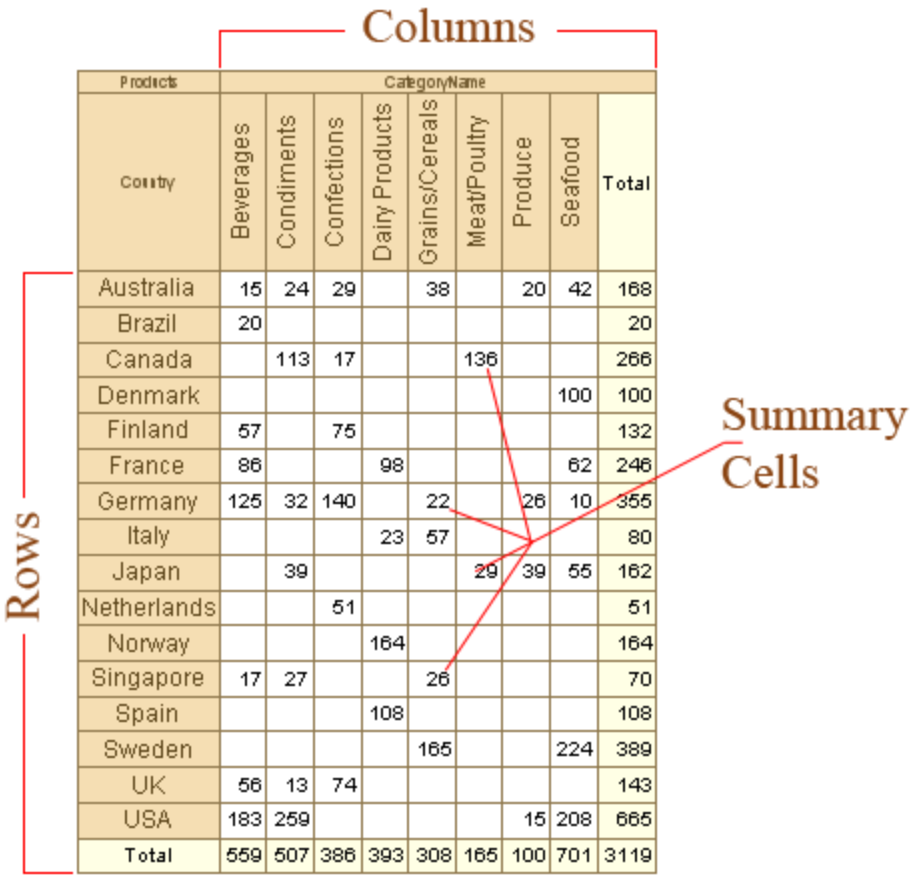


In a summary cell all values from the data source which are suitable for a particular condition are grouped. The condition is the coincidence of the value of the column and the row from a data source with the value of the column and row of a cross-table. The value of a cross table column and a row is indicated by intersection where the summary cell is placed. For example, see a simple cross table on a picture below:

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| Products | CategoryName | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Country | Beverages | Condiments | Confections | Dairy Products | Grains/Cereals | Meat/Poultry | Produce | Seafood | Total |
| Australia | 15 | 24 | 29 | | 38 | | 20 | 42 | 168 |
| Brazil | 20 | | | | | | | | 20 |
| Canada | | 113 | 17 | | | 136 | | | 266 |
| Denmark | | | | | | | | 100 | 100 |
| Finland | 57 | | 75 | | | | | | 132 |
| France | 86 | | | 98 | | | | 62 | 246 |
| Germany | 125 | 32 | 140 | | 22 | | 26 | 10 | 355 |
| Italy | | | | 23 | 57 | | | | 80 |
| Japan | | 39 | | | | 29 | 39 | 55 | 162 |
| Netherlands | | | 51 | | | | | | 51 |
| Norway | | | | 164 | | | | | 164 |
| Singapore | 17 | 27 | | | 26 | | | | 70 |
| Spain | | | | 108 | | | | | 108 |
| Sweden | | | | | 165 | | | 224 | 389 |
| UK | 56 | 13 | 74 | | | | | | 143 |
| USA | 183 | 259 | | | | | 15 | 208 | 665 |
| Total | 559 | 507 | 386 | 393 | 308 | 165 | 100 | 701 | 3119 |

The red rectangle indicates the summary cell with the 140 values and also a column and a row of this cell. In this cell all values from the data source which CategoryName column is equal to Confection and Country row is equal to Germany were grouped. The rules of grouping are set using the **Summary** property of a summary cell.

If more than one summary cell is set in a Cross table then it is possible to define the direction of placing of these cells. The reporting tool can place them horizontally from left to right or vertically from top to bottom. On a picture below a table with horizontally placed summary cells is shown.

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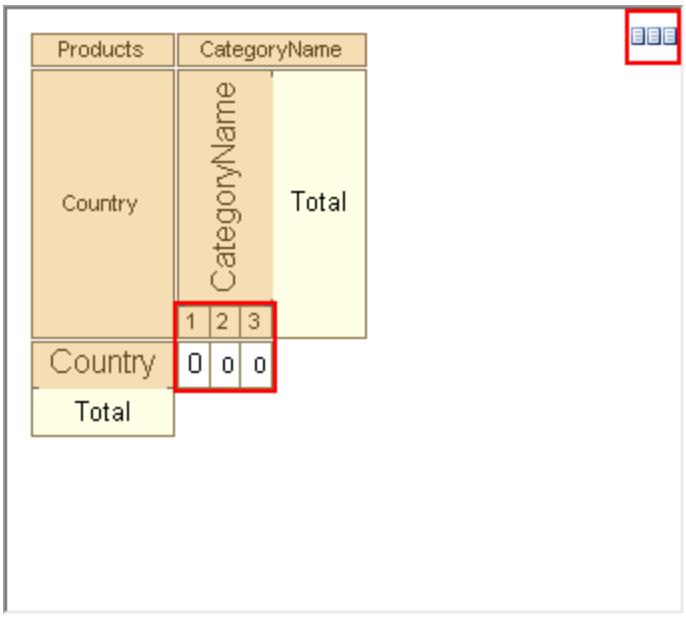
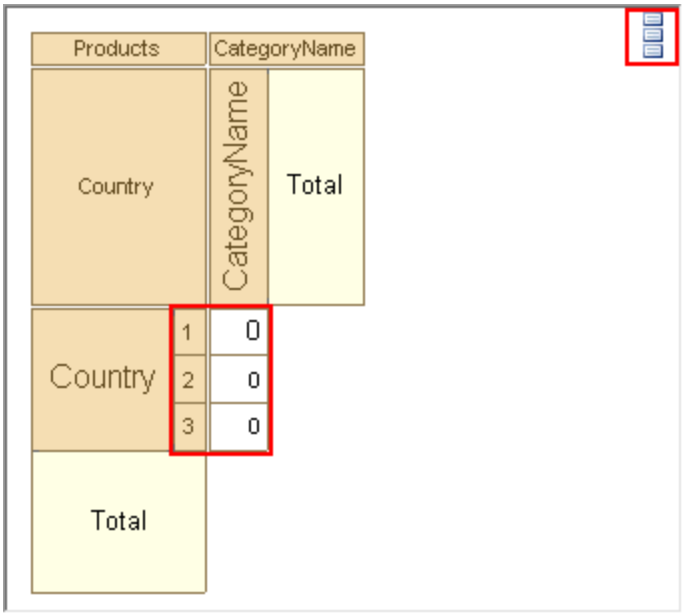



On a picture below a table with vertically placed summary cells is shown.




## 5.26.3 Cross Table Editor

For editing a cross table the Cross Table editor is used. The editor is divided in four zones: data source selection, columns, rows and cells selection, cross table preview and a property grid.

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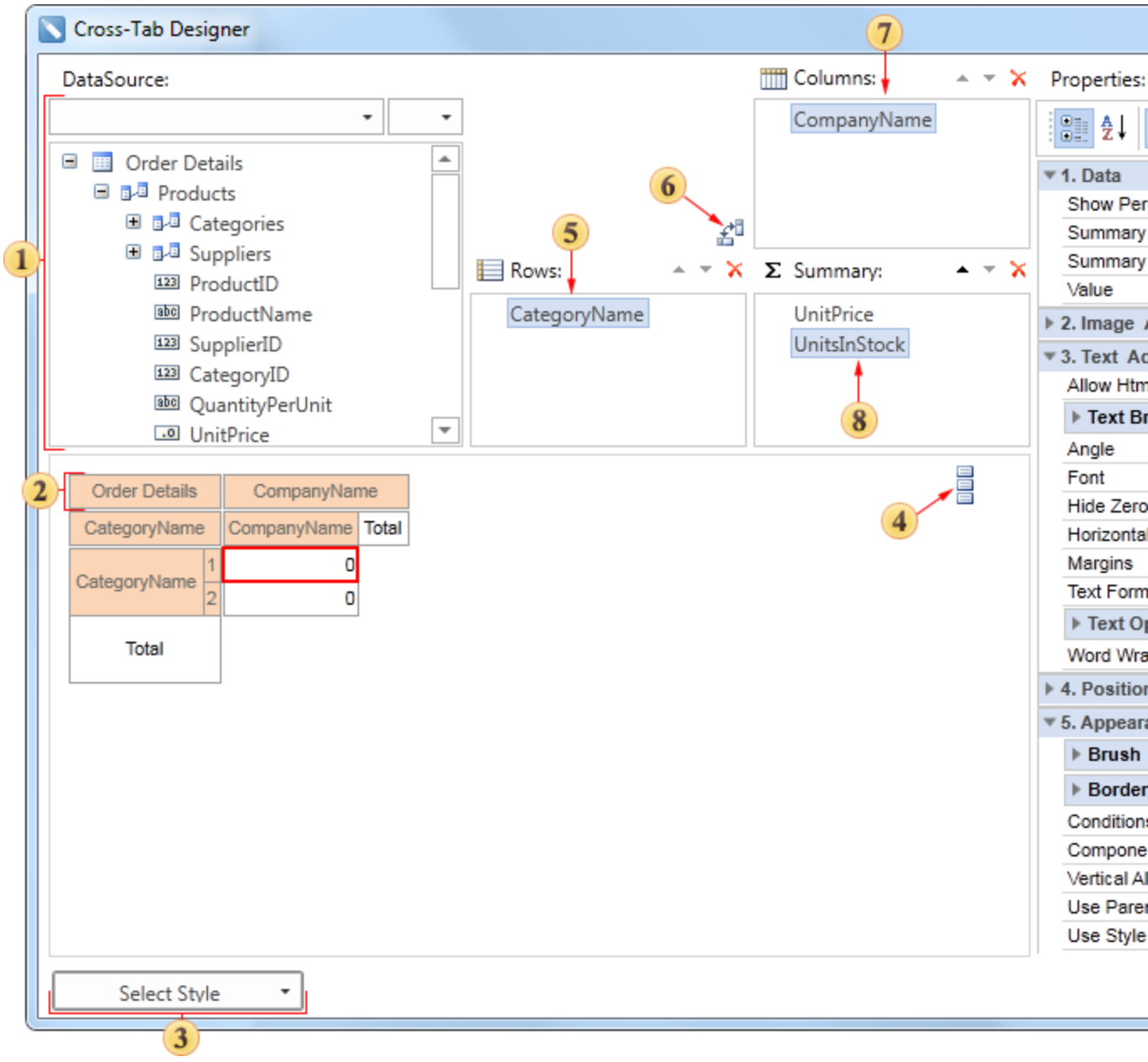


1. The Data source that is used for the table creation;
2. The Table Header;
3. Select a style of the table appearance;
4. Change the direction of summary in a table;
5. The list of rows;
6. This button is used to change columns and rows;
7. A list of columns;
8. A list of Summaries.

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### 5.26.4 Data Summary Types

When rendering a cross-table, the report generator should know how the values in the summary cells will be summarize. Summation function is set using the Summary property of a summary cell. For each summary cell its own function can be specified. A Cross Table works with the following functions:

| Function | Description |
|---|---|
| **None** | Do not summarize the cell values |
| **Sum** | Returns the sum of values that are contained in the cell |
| **Average** | Returns the average of values that are contained in the cell |
| **Min** | Returns the minimal of values that are contained in the cell |
| **Max** | Returns the maximal of values that are contained in the cell |
| **Count** | Returns the number of values that are contained in the cell |
| **CountDistinct** | Returns the number of distinct values that are contained in the cell |
| **Image** | A cross table will show the first value as an image |

In addition to the Summary property, there is another property that affects on the summary. This is the Summary Values property. This property identifies and process the 0 and null values when calculating totals.

### 5.26.5 Sort Direction

The values of the source data that are used to group rows and columns are always re-sorted with the component of a cross-table. Resorting is necessary in order that, when showing a cross-table, rows and columns do not contain duplicates. But this behavior can be changed. The type sorting is specified using two properties: **SortDirection** and **SortType**. These properties are available for columns and rows of a cross-table.

| | |
|---|---|
| SortDirection | Asc |
| SortType | ByDisplayValue |

Using the **SortDirection** property it is possible to set the direction of sorting. Sorting can be in ascending order, descending, or no sorting. The **SortType** property sets the source of values for sorting: by value or by the displayed value. The picture below shows a table, sorted in two different directions.

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| Country | UnitsInStock |
|---|---|
| Australia | 168 |
| Brazil | 20 |
| Canada | 266 |
| Denmark | 100 |
| Finland | 132 |
| France | 246 |
| Germany | 355 |
| Italy | 80 |
| Japan | 162 |
| Netherlands | 51 |
| Norway | 164 |
| Singapore | 70 |
| Spain | 108 |
| Sweden | 389 |
| UK | 143 |
| USA | 665 |
| Total | 3119 |

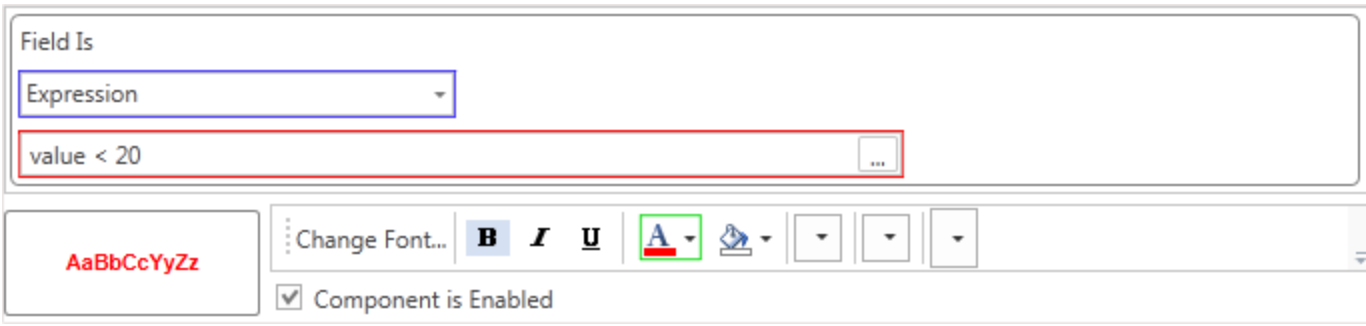
| Country | UnitsInStock |
|---|---|
| USA | 665 |
| UK | 143 |
| Sweden | 389 |
| Spain | 108 |
| Singapore | 70 |
| Norway | 164 |
| Netherlands | 51 |
| Japan | 162 |
| Italy | 80 |
| Germany | 355 |
| France | 246 |
| Finland | 132 |
| Denmark | 100 |
| Canada | 266 |
| Brazil | 20 |
| Australia | 168 |
| Total | 3119 |

## 5.26.6 Conditions

Often, when rendering a cross table, it is necessary that, according to certain conditions, the appearance of a cell will be changed. To achieve this, you can use the Conditions property of columns, rows and, summary cells.

In order to specify the condition, it is necessary to select a component for what this condition will be executed and call the Conditions editor from the properties panel or from the toolbars.

For example, we need to mark summary cells which values are less than 20.
Add a new conditional formatting for the cell. Make three changes in the condition (see picture below).




Change the value of the Field Is field on the Expression (marked with blue). Specify the required expression (marked with red):

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```
value <20
```

The value variable contains the total value of the summary cell. And change the text color of cells to red (marked with green). An example of report rendering is shown on the picture below.

| Products | CategoryName | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Country | Beverages | Condiments | Confections | Dairy Products | Grains/Cereals | Meat/Poultry | Produce | Seafood | Total |
| Australia | 15 | 24 | 29 | | 38 | | 20 | 42 | 168 |
| Brazil | 20 | | | | | | | | 20 |
| Canada | | 113 | 17 | | | 136 | | | 266 |
| Denmark | | | | | | | | 100 | 100 |
| Finland | 57 | | 75 | | | | | | 132 |
| France | 86 | | | 98 | | | | 62 | 246 |
| Germany | 125 | 32 | 140 | | 22 | | 26 | 10 | 355 |
| Italy | | | | 23 | 57 | | | | 80 |
| Japan | | 39 | | | | 29 | 39 | 55 | 162 |
| Netherlands | | | 51 | | | | | | 51 |
| Norway | | | | 164 | | | | | 164 |
| Singapore | 17 | 27 | | | 26 | | | | 70 |
| Spain | | | | 108 | | | | | 108 |
| Sweden | | | | | 165 | | | 224 | 389 |
| UK | 56 | 13 | 74 | | | | | | 143 |
| USA | 183 | 259 | | | | | 15 | 208 | 665 |
| Total | 559 | 507 | 386 | 393 | 308 | 165 | 100 | 701 | 3119 |

## 5.26.7 Showing Totals

**Rows** and **Columns** of a cross-table have the **ShowTotal** property, which allows you to show or hide totals by rows and columns. If this property for **Rows** and **Columns** is set to **true**, then the totals by rows and columns are visually displayed. The picture below shows an example of a cross-table with a visually displayed results:

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| Products | Category/Name | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Country | Beverages | Condiments | Confections | Dairy Products | Grains/Cereals | Meat/Poultry | Produce | Seafood | Total |
| Australia | 15 | 24 | 29 | | 38 | | 20 | 42 | 168 |
| Brazil | 20 | | | | | | | | 20 |
| Canada | | 113 | 17 | | | 136 | | | 266 |
| Denmark | | | | | | | | 100 | 100 |
| Finland | 57 | | 75 | | | | | | 132 |
| France | 86 | | | 98 | | | | 62 | 246 |
| Germany | 125 | 32 | 140 | | 22 | | 26 | 10 | 355 |
| Italy | | | | 23 | 57 | | | | 80 |
| Japan | | 39 | | | | 29 | 39 | 55 | 162 |
| Netherlands | | | 51 | | | | | | 51 |
| Norway | | | | 164 | | | | | 164 |
| Singapore | 17 | 27 | | | 26 | | | | 70 |
| Spain | | | | 108 | | | | | 108 |
| Sweden | | | | | 165 | | | 224 | 389 |
| UK | 56 | 13 | 74 | | | | | | 143 |
| USA | 183 | 259 | | | | | 15 | 208 | 665 |
| Total | 559 | 507 | 386 | 393 | 308 | 165 | 100 | 701 | 3119 |

If, for example, the **ShowTotal** property is set to **false** for rows, then the total by rows will not be displayed. The picture below shows an example of a cross-table, where the **ShowTotal** property of rows is set to **false**:

| Products | Category/Name | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Country | Beverages | Condiments | Confections | Dairy Products | Grains/Cereals | Meat/Poultry | Produce | Seafood | Total |
| Australia | 15 | 24 | 29 | | 38 | | 20 | 42 | 168 |
| Brazil | 20 | | | | | | | | 20 |
| Canada | | 113 | 17 | | | 136 | | | 266 |
| Denmark | | | | | | | | 100 | 100 |
| Finland | 57 | | 75 | | | | | | 132 |
| France | 86 | | | 98 | | | | 62 | 246 |
| Germany | 125 | 32 | 140 | | 22 | | 26 | 10 | 355 |
| Italy | | | | 23 | 57 | | | | 80 |
| Japan | | 39 | | | | 29 | 39 | 55 | 162 |
| Netherlands | | | 51 | | | | | | 51 |
| Norway | | | | 164 | | | | | 164 |
| Singapore | 17 | 27 | | | 26 | | | | 70 |
| Spain | | | | 108 | | | | | 108 |
| Sweden | | | | | 165 | | | 224 | 389 |
| UK | 56 | 13 | 74 | | | | | | 143 |
| USA | 183 | 259 | | | | | 15 | 208 | 665 |

If, for example, the **ShowTotal** property for columns is set to **false**, then total by columns will not be displayed. The picture below shows an example of a cross-table, where the **ShowTotal** property of columns is set to **false**:

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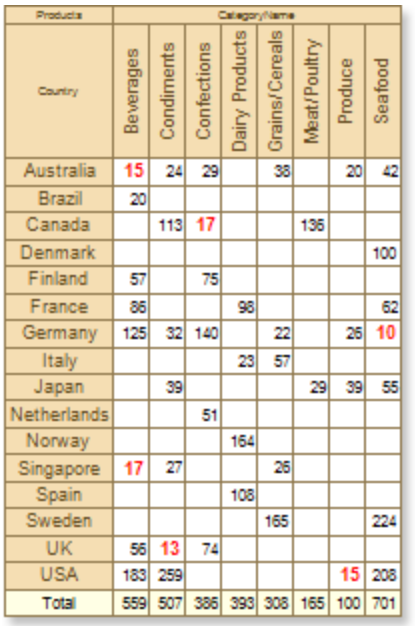

| Products | Category Name | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Country | Beverages | Condiments | Confections | Dairy Products | Grains/Cereals | Meat/Poultry | Produce | Seafood |
| Australia | 15 | 24 | 29 | | 38 | | 20 | 42 |
| Brazil | 20 | | | | | | | |
| Canada | | 113 | 17 | | | 136 | | |
| Denmark | | | | | | | | 100 |
| Finland | 57 | | 75 | | | | | |
| France | 86 | | | 98 | | | | 62 |
| Germany | 125 | 32 | 140 | | 22 | | 26 | 10 |
| Italy | | | | 23 | 57 | | | |
| Japan | | 39 | | | | 29 | 39 | 55 |
| Netherlands | | | 51 | | | | | |
| Norway | | | | 164 | | | | |
| Singapore | 17 | 27 | | | 26 | | | |
| Spain | | | | 108 | | | | |
| Sweden | | | | | 165 | | | 224 |
| UK | 56 | 13 | 74 | | | | | |
| USA | 183 | 259 | | | | | 15 | 208 |
| Total | 559 | 507 | 386 | 393 | 308 | 165 | 100 | 701 |

By default, the **ShowTotal** property for rows and columns is set to **true**, i.e. totals by rows and columns are displayed.

## 5.26.8 Processing Values for Summary

The **Cross Table** has the **SummaryValues** property, which allows you to display the total number of values of the cross-table, considering or not considering to 0 and/or null values. The **SummaryValues** property can take three values, depending on the value of the property, the number of values will be displayed as a result. Values of the **SummaryValues** property and their description are described in the table below:

| Function | Description |
|---|---|
| **AllValues** | All values, contained in a cell |
| **SkipZerosAndNulls** | Skip **0** **null** values, contained in a cell |
| **SkipNulls** | Skip **null** values, contained in a cell |

## 5.26.9 Word Wrap

Each component of the cross-table has the **WordWrap** property, which lets you wrap text from one line to another. If the **WordWrap** property is set to **false**, then the text is in one line, and if it does not fit in one line it will be cut. The picture below shows an example of a cross-table with the **WordWrap** property set to **false**:

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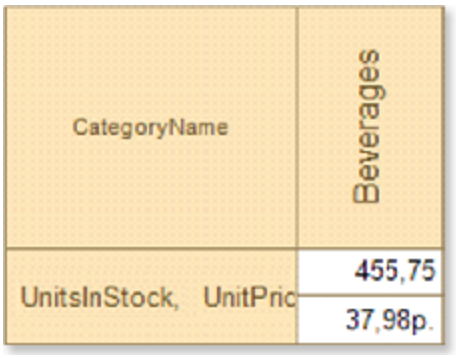
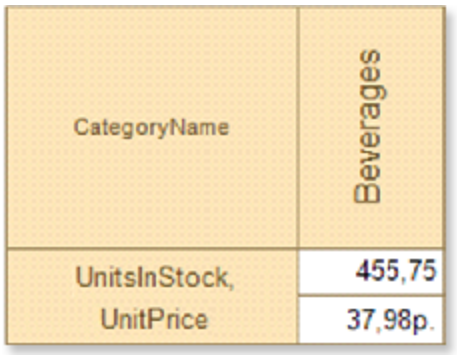



If the **WordWrap** property is set to **true**, then text wrapping goes automatically. When wrapping a text on the new line the vertical and horizontal alignment are taken into the account. The picture below shows an example of a cross-table that has the **WordWrap** property set to **true**:



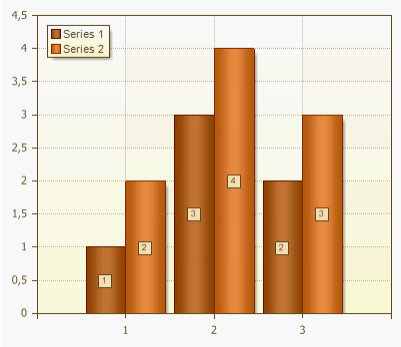

By default, the **WordWrap** property of cross-table components is set to **false**.

## 5.27 Charts

### Column Area

Data that is arranged in columns or rows. Column charts are useful for showing data changes over a period of time or for illustrating comparisons among items:

**Clustered Column**
Clustered column charts compare values across categories.

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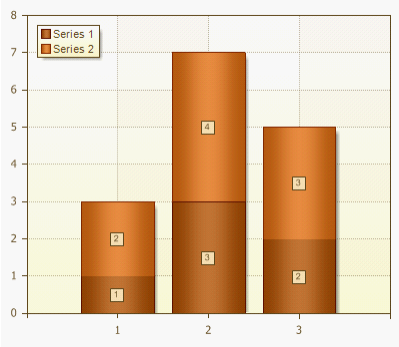
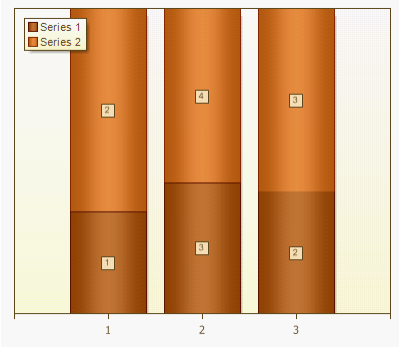
**Stacked Column**

Stacked column charts show the relationship of individual items to the whole, comparing the contribution of each value to a total across categories.




**Full-Stacked Column**

Full-Stacked column allows comparing the percentage of each value.




**Bar Area**

Data that is arranged in columns or rows on a worksheet can be plotted in a bar chart. Bar charts illustrate comparisons among individual items. Bar Area should be used if:

- Ticks are long.
- If a values show duration.

**Clustered Bar**

Clustered bar charts compares values across categories. In a clustered bar chart, the categories are typically organized along the vertical axis, and the values along the horizontal axis.

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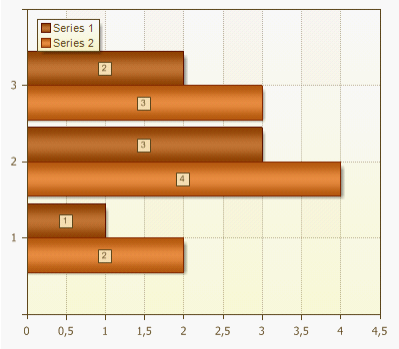
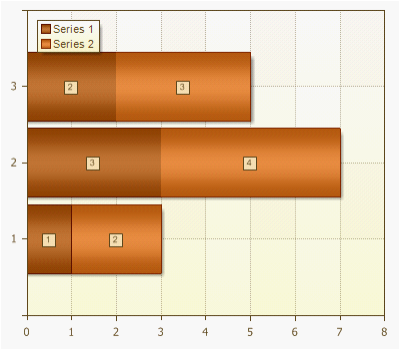


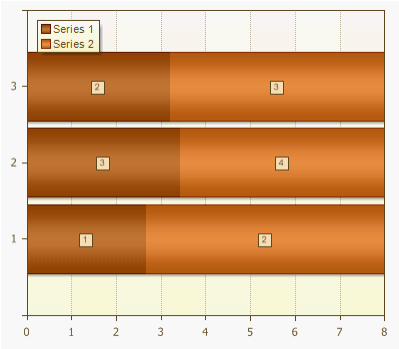

**Stacked Bar**

Stacked bar charts show the relationship of individual items to the whole.




**Full-Stacked Bar**

This type of charts allows comparing percentage of each value with the total inside the category.




**Pie Area**

Data that is arranged in one column or row only on a worksheet can be plotted in a pie chart. In a pie chart, the arc length of each sector, is proportional to the quantity it represents. Together, the sectors create a full disk.

Pie charts should be used if:

- It is required to show one row of data;
- All values are positive and greater than 0;
- A values belongs to no more than 7 categories;
- Categories corresponds to some parts of the whole chart disk.

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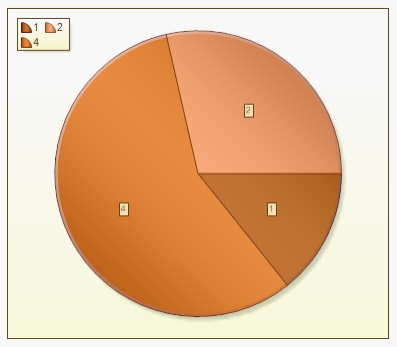
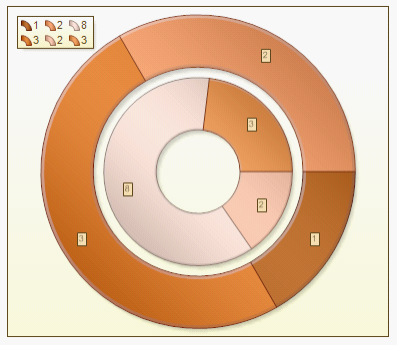
**Pie**

Pie charts display the contribution of each value to a total. It is possible to manually pull out the slices of a pie chart to emphasize them.



**Doughnut**

A doughnut chart is functionally similar to a pie chart, with the exception of a blank center and the ability to support multiple statistics as one.



**Line Area**

Data that is arranged in columns or rows on a worksheet can be plotted in a line chart. Line charts can display continuous data over time, set against a common scale, and are therefore ideal for showing trends in data at equal intervals.

**Line**

Line and line with markers are used to indicate individual data values, line charts are useful to show trends over time or ordered categories, especially when there are many data points and the order in which they are presented is important.

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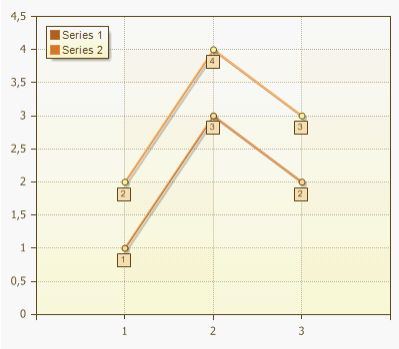
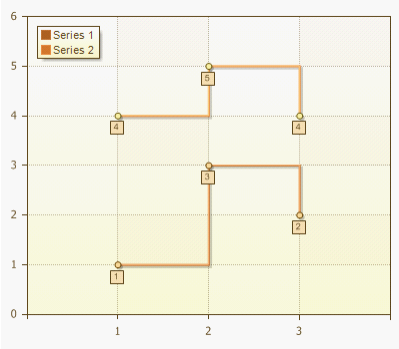
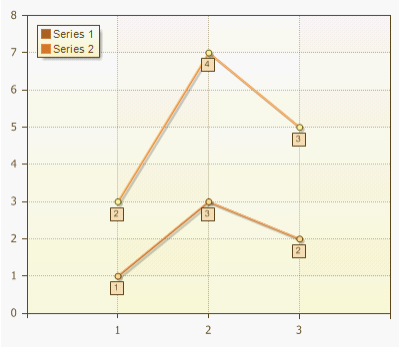



**Stepped Line**




**Stacked Line**

Displayed with or without markers to indicate individual data values, stacked line charts are useful to show the trend of the contribution of each value over time or ordered categories. If there are many categories or the values are approximate, you should use a stacked line chart without markers.




**Full-Stacked Line**

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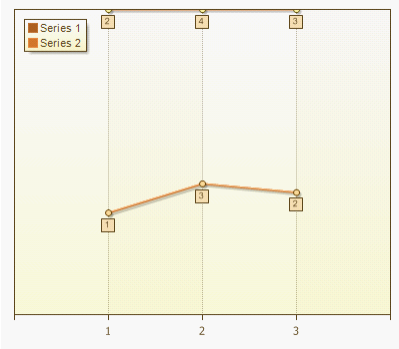
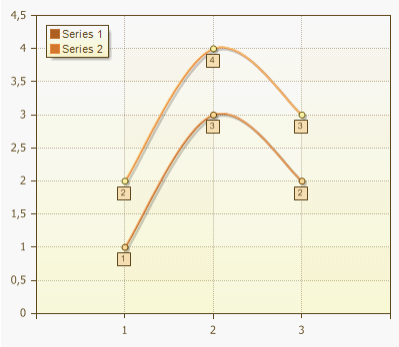
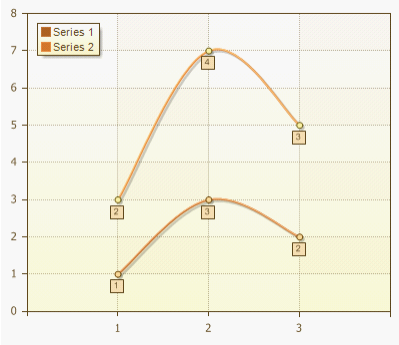



**Spline Area**
**Spline**




**Stacked Spline**




**Full-Stacked Spline**

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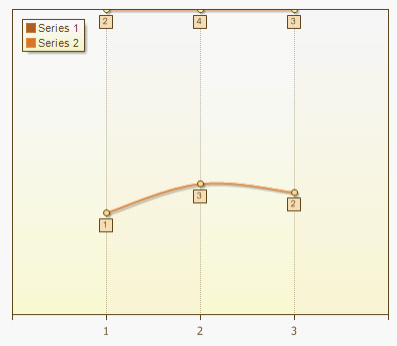
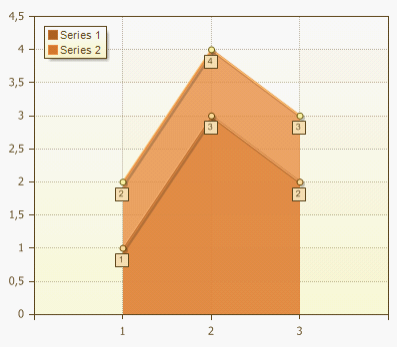



**Area**

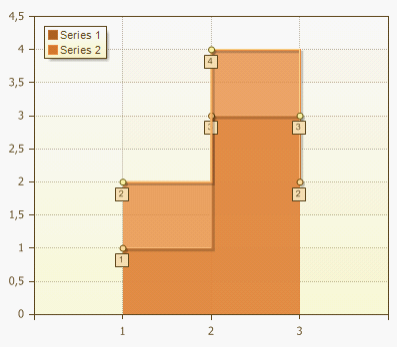
Data that is arranged in columns or rows on a worksheet can be plotted in an area chart. Area charts illustrate changes depending on time period and can be used to attract attention to summary value in compliance with trend. For example, data which shows profit depending on time can be created in Area charts to attract attention to total profit.

**Area**

Area charts display the trend of values over time or categories.




**Stepped Area**




**Stacked Area**

Stacked area charts display the trend of the contribution of each value over time or categories.

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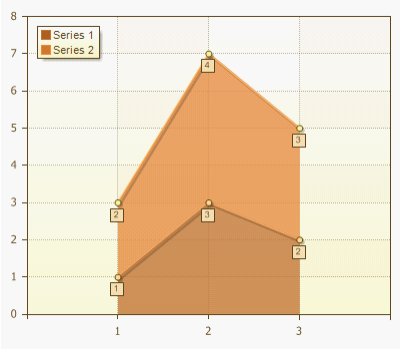
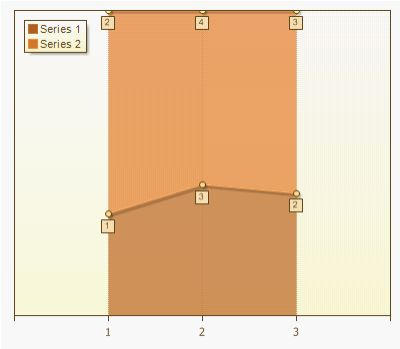


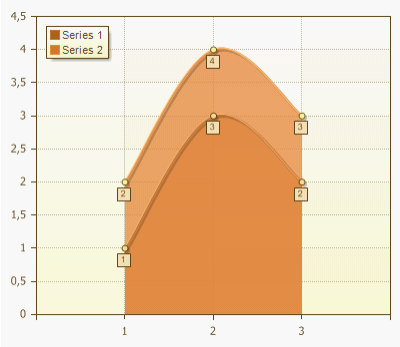

**Full-Stacked Area**

Full-Stacked Area charts display the trend of the percentage each value contributes over time or categories.




**Spline Area**

**Spline Area**




**Stacked Spline Area**

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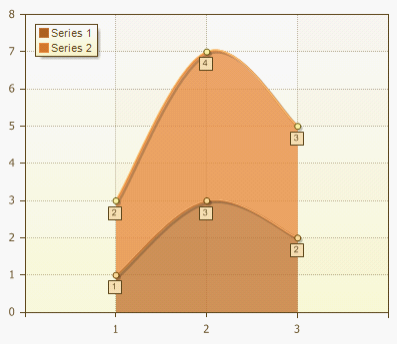
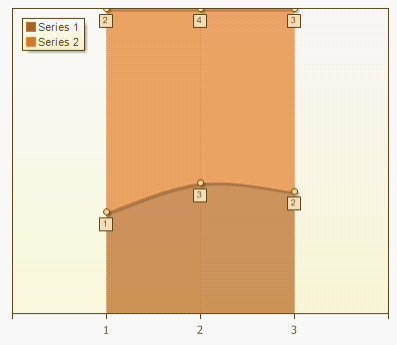


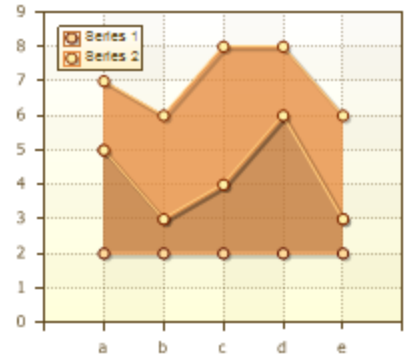

**Full-Stacked Spline Area**




**Range**

The chart type **Range** can be used to display the interval of values per unit of time or period of time. To build such a diagram you should have start and end values.

**Range**




**Stepped Range**

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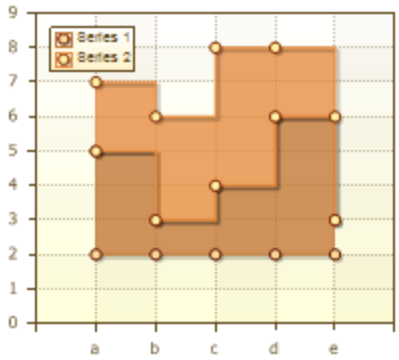
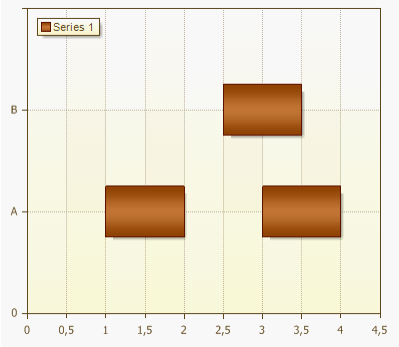



**Gantt Area**
A Gantt chart is a type of bar chart that illustrates a project schedule.

**Gantt**
Gantt charts illustrate the start and finish dates of the terminal elements and summary elements of a project.




**Scatter Area**
Data that is arranged in columns and rows on a worksheet can be plotted in an xy (scatter) chart. Scatter charts show the relationships among the numeric values in several data series, or plots two groups of numbers as one series of xy coordinates.
A scatter chart has two value axes, showing one set of numerical data along the horizontal axis (x-axis) and another along the vertical axis (y-axis). It combines these values into single data points and displays them in uneven intervals, or clusters. Scatter charts are commonly used for displaying and comparing numeric values, such as scientific, statistical, and engineering data.
Scatter charts should be used if:

- It is required to change the scale of the horizontal axis;
- Values for horizontal axis are not evenly spaced;
- There are many data points on the horizontal axis;
- It is required to show similarities between large sets of data instead of differences between data points;
- It is required to compare large numbers of data points without regard to time - the more data that you include in a scatter chart, the better the comparisons that you can make.

**Scatter**
This type of chart compares pairs of values. Use a scatter chart without lines when you have data in a

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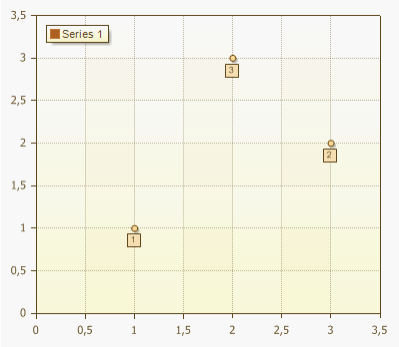
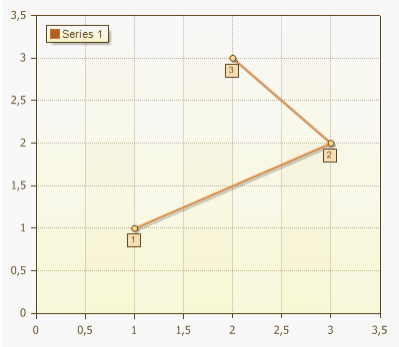
specific order.



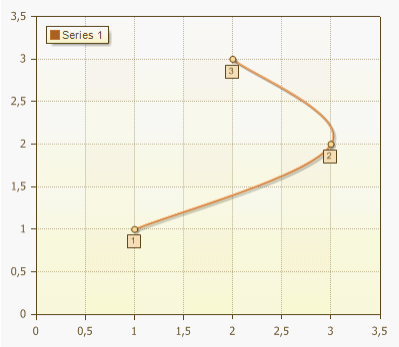

**Scatter Line**

This type of chart can be displayed with or without straight connecting lines between data points. These lines can be displayed with or without markers.




**Scatter Spline**

This type of chart can be displayed with or without a smooth curve connecting the data points. These lines can be displayed with or without markers. Use the scatter chart without markers if there are many data points.




## 5.27.1 Charts Properties

### Main Properties

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### 1. Chart

| Property name | Description |
|---|---|
| **Chart Type** | Chart Type |
| **Area** | Properties of the current area |
| **Legend** | Properties of the chart legend |
| **Series** | A collection of chart series |
| **Series Labels** | Properties of series labels |
| **Style** | Sets a Chart style |

### 2. Chart Additional

| Property name | Description |
|---|---|
| **Constant Lines** | Sets a collection of constant lines of chart |
| **Process at End** | Sets that a chart is processed at the end of the report execution |
| **Rotation** | Sets a rotation angle of a chart |
| **Horizontal Spacing** | Sets horizontal spacing between the chart area and axis area |
| **Vertical Spacing** | Sets vertical spacing between the chart area and axis area |
| **Strips** | Sets a collection of chart strips |
| **Title** | Sets chart title properties |

### 3. Data

| Property name | Description |
|---|---|
| **Data Source** | Get data source that is used for getting data |
| **Data Relation** | Get the link that is used for master-detail reports rendering |
| **Master Component** | Gets or sets the master component |
| **Count Data** | Gets or sets the count of rows for virtual data |
| **Filter On** | Gets or sets value indicates, that the filter is on |
| **Filters** | Gets or sets a collection of filters of chart data |
| **Sort** | Gets or sets the array of strings that describes rules of sorting |

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### 4. Position

| Property name | Description |
|---|---|
| **Left** | Gets or sets the distance, between the left edge of the component and the left edge of its container's client area |
| **Top** | Gets or sets top position of the component |
| **Width** | Gets or sets width of the component |
| **Height** | Gets or sets height of the component |
| **Min Size** | Gets or sets minimal size |
| **Max Size** | Gets or sets maximal size |

### 5. Appearance

| Property name | Description |
|---|---|
| **Brush** | Gets or sets a brush to fill a component |
| **Border** | Gets or sets frame of the component |
| **Conditions** | Gets or sets a component condition |
| **Use Parent Styles** | Gets or sets a value which indicates that this component must use styles from parent component |

### 6. Behavior

| Property name | Description |
|---|---|
| **Grow to Height** | Gets or sets value which indicates that the height of this component increases/decreases to the bottom of a container |
| **Dock Style** | Gets or sets a type of the component docking |
| **Enabled** | Gets or sets a value which indicates will this component be available |
| **Interaction** | |
| **Printable** | Gets or sets value which indicates whether a component is printable |
| **Print on** | Gets or sets value which indicates on which pages component will be printed |
| **Shift Mode** | Gets or sets value which indicates the shift mode of a component |

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**7. Design**

| Property name | Description |
|---|---|
| **Name** | Gets or sets a component name |
| **Alias** | Gets or sets a text that will be shown instead of a component name. If the text is not indicated then the name is shown |
| **Restrictions** | Gets or sets value which indicates the restrictions of a component |
| **Locked** | Gets or sets a value which indicates that moving is locked |
| **Linked** | Gets or sets value, indicates that the object snap to the container is turned on |

## Axis Area Properties

| Property name | Description |
|---|---|
| **Brush** | Gets or sets a brush to fill area |
| **Border Color** | Gets or sets border color of area |
| **Color Each** | Gets or sets value which indicates that each series is drawn by its own color |
| **Grid Lines Horizontal** | Gets or sets horizontal grid lines on left axis |
| **Grid Lines Horizontal Right** | Gets or sets horizontal grid lines on right axis |
| **Grid Lines Vertical** | Gets or sets grid lines on vertical axis |
| **Interlacing Horizontal** | Gets or sets interlacing settings on horizontal axis |
| **Interlacing Vertical** | Gets or sets interlacing settings on vertical axis |
| **Reverse Horizontal** | Gets or sets value which indicate that all values on horizontal axis is reverse |
| **Reverse Vertical** | Gets or sets value which indicate that all values on vertical axis is reverse |
| **Show Shadow** | Gets or sets value which indicates whether it is necessary to draw shadow |
| **X Axis** | Gets or sets settings of XAxis |
| **X Top Axis** | Gets or sets settings of XTopAxis |
| **Y Axis** | Gets or sets settings of YAxis |
| **Y Right Axis** | Gets or sets settings of YRightAxis |

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## Pie Area Properties

| Property name | Description |
|---|---|
| **Brush** | Gets or sets a brush to fill area |
| **Border Color** | Gets or sets border color of area |
| **Show Shadow** | Gets or sets value which indicates whether it is necessary to draw shadow |

## Doughnut Area Properties

| Property name | Description |
|---|---|
| **Brush** | Gets or sets a brush to fill area |
| **Border Color** | Gets or sets border color of area |
| **Color Each** | Gets or sets value which indicates that each series is drawn by its own color |
| **Show Shadow** | Gets or sets value which indicates whether it is necessary to draw shadow |

## Legend Properties

| Property name | Description |
|---|---|
| **Brush** | Gets or sets a brush to fill a legend |
| **Direction** | Gets or sets direction of a legend |
| **Horizontal Alignment** | Gets or sets the text horizontal alignment of a legend |
| **Vertical Alignment** | Gets or sets the vertical alignment of a legend |
| **Marker Alignment** | Gets or sets the marker alignment |
| **Border Color** | Gets or sets a border color of a legend |
| **Columns** | Gets or sets a columns count of a legend |
| **Font** | Gets or sets a font of a legend |
| **Horizontal Spacing** | Gets or sets horizontal spacing from a legend border |
| **Labels Color** | Gets or sets a color of a legend text |
| **Marker Size** | Gets or sets marker size |
| **Marker Visible** | Gets or sets visibility of marker |
| **Show Shadow** | Gets or sets value which indicates whether it is necessary to draw shadow |

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| | |
|---|---|
| **Size** | Gets or sets legend size |
| **Title** | Gets or sets legend title |
| **Title Color** | Gets or sets legend color |
| **Title Font** | Gets or sets legend font |
| **Vertical Spacing** | Gets or sets vertical spacing from a legend border |
| **Visible** | Gets or sets whether a legend should be visible |

## Title Properties

| Property name | Description |
|---|---|
| **Alignment** | Gets or sets horizontal alignment of a title |
| **Antialiasing** | Gets or sets antialiasing of a title text |
| **Brush** | Gets or sets a brush to fill a title |
| **Dock** | Gets or sets a side to which a title will be docked |
| **Font** | Gets or sets a font of a title |
| **Spacing** | Gets or sets spacing from a title |
| **Text** | Gets or sets a title text |
| **Visible** | Gets or sets whether a title should be visible |

## Series Labels Properties

| Property Name | Description |
|---|---|
| **Brush** | Gets or sets a brush to fill a series labels |
| **Font** | Gets or sets a font of an series labels |
| **Marker Alignment** | Gets or sets marker alignment |
| **Angle** | Gets or sets angle of a text rotation |
| **Antialiasing** | Gets or sets antialiasing of text titles |
| **Border Color** | Gets or sets a border color of an series labels |
| **Draw Border** | Gets or sets a value that indicates whether the border for Series Labels is drawn |
| **Format** | Gets or sets a text format |
| **Label Color** | Gets or sets label color |
| **Legend Value Type** | Gets or sets legend type value |

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| | |
|---|---|
| **Marker Size** | Gets or sets marker size |
| **Marker Visible** | Gets or sets a value that indicates whether a marker is visible |
| **Prevent Intersection** | Gets or sets a value that includes algorithm of preventing intersection with the X axis |
| **Show on Zero Values** | Gets or sets forcibly showing zero values |
| **Step** | Gets or sets a step of showing series labels |
| **Text After** | Gets or sets a text that is shown after series |
| **Text Before** | Gets or sets a text that is shown before series |
| **Use Series Color** | Gets or sets a value that indicates whether colors are set for series are used |
| **Value Type** | Gets or sets a type of parameter that will be used in a series label |
| **Visible** | Gets or sets a value that indicates visibility of series labels |

## Series Labels (None) Properties

| Property Name | Description |
|---|---|
| **Marker Alignment** | Gets or sets marker alignment |
| **Angle** | Gets or sets angle of a text rotation |
| **Draw Border** | Gets or sets a value that indicates whether border for series labels should be drawn |
| **Format** | Gets or sets text formatting |
| **Legend Value Type** | Gets or sets legend value type |
| **Marker Size** | Gets or sets marker size |
| **Marker Visible** | Gets or sets whether a marker should be visible |
| **Show on Zero Values** | Gets or sets force showing zero values |
| **Step** | Gets or sets a step of showing series labels |
| **Text After** | Gets or sets a text that is shown after series |
| **Text Before** | Gets or sets a text that is shown before series |
| **Use Series Color** | Gets or sets a value that indicates whether colors are set for series are used |
| **Value Type** | Gets or sets a type of parameter that will be used in a series label |

## Series Labels (Outside) Properties

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| Property Name | Description |
|---|---|
| **Brush** | Gets or sets a brush to fill a series labels |
| **Font** | Gets or sets a font of an series labels |
| **Marker Alignment** | Gets or sets marker alignment |
| **Angle** | Gets or sets angle of a text rotation |
| **Antialiasing** | Gets or sets antialiasing of Series Labels |
| **Border Color** | Gets or sets a border color of series labels |
| **Draw Border** | Gets or sets a value that indicates whether border for series labels should be drawn |
| **Format** | Gets or sets text formatting |
| **Label Color** | Gets or sets label color |
| **Legend Value Type** | Gets or sets legend value type |
| **Line Length** | Gets or sets length of a connecting line of a series label |
| **Marker Size** | Gets or sets marker size |
| **Marker Visible** | Gets or sets whether a marker should be visible |
| **Show on Zero Values** | Gets or sets force showing zero values |
| **Step** | Gets or sets a step of showing series labels |
| **Text After** | Gets or sets a text that is shown after series |
| **Text Before** | Gets or sets a text that is shown before series |
| **Use Series Color** | Gets or sets a value that indicates whether colors are set for series are used |
| **Value Type** | Gets or sets a type of parameter that will be used in a series label |
| **Visible** | Gets or sets a value that indicates visibility of series labels |

## Axis Properties

| Property Name | Description |
|---|---|
| **Arrow Style** | Gets or sets arrow style |
| **Labels** | Gets or sets labels |
| **Line Color** | Gets or sets line color |
| **Line Style** | Gets or sets line style |
| **Line Width** | Gets or sets line width |
| **Range** | Gets or sets range |

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| | |
|---|---|
| **Show Edge Values** | Gets or sets show edge values |
| **Start From Zero** | Gets or sets a value that indicates how a chart should be shown on the chart area |
| **Step** | Gets or sets step |
| **Ticks** | Gets or sets ticks |
| **Title** | Gets or sets a title |
| **Visible** | Gets or sets a value that indicates visibility of axis |

## Grid Lines Properties

| Property Name | Description |
|---|---|
| **Color** | Gets or sets color |
| **Minor Color** | Gets or sets minor ticks color |
| **Minor Count** | Gets or sets minor ticks count |
| **Minor Style** | Gets or sets minor ticks style |
| **Minor Visible** | Gets or sets minor ticks visibility |
| **Style** | Gets or sets style |
| **Visible** | Gets or sets visibility |

## Interlacing Properties

| Property Name | Description |
|---|---|
| **Interlaced Brush** | Gets or sets Interlaced Brush |
| **Visible** | Gets or sets visibility |

## Clustered Column, Clustered Bar, Stacked Column, Full-Stacked Column, Stacked Bar Series Properties

**1. Data**

| Property Name | Description |
|---|---|
| **Conditions** | Gets or sets a collection of conditions |
| **Filters** | Gets or sets a collection of filters |
| **Format** | Gets or sets a data format in what series labels will be shown |
| **Sort by** | Gets or sets section of sorting data by values, arguments, of without sorting |

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| | |
|---|---|
| **Sort Direction** | Gets or sets sort direction |
| **Auto Series Key Data Column** | Gets or sets a data column name with the key-value that is used to create series automatically |
| **Auto Series Color Data Column** | Gets or sets a data column name that defines color of automatically created series. The color should be represented as a string |
| **Auto Series Title Data Column** | Gets or sets a data column name that defines a title of automatically created series |

**2. Appearance**

| Property Name | Description |
|---|---|
| **Border Color** | Gets or sets a border color |
| **Brush** | Gets or sets a series brush |
| **Show Shadow** | Gets or sets a shadow |

**3. Behavior**

| Property Name | Description |
|---|---|
| **Show Zeros** | Gets or sets a value that visualizes zero values of series |
| **Width** | Gets or sets a series column width |
| **Y Axis** | Gets or sets axis to what a series is assigned |
| **Series Labels** | Gets or sets series labels for this series |
| **Show in Legend** | Gets or sets value that allows showing series label in a legend |
| **Show Series Labels** | Gets or sets which type of series labels will be used: from chart settings or from settings from the series |
| **Title** | Gets or sets a series title |

**4. Argument**

| Property Name | Description |
|---|---|
| **Argument Data Column** | Gets or sets a data column name that indicates a value of an argument |
| **Argument** | Gets or sets an expression of an argument. For example: {Order. Argument} |
| **List of Arguments** | Gets or sets an expression that indicates a list of arguments. For example: 1;2;3 |

**5. Value**

| Property Name | Description |
|---|---|

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| | |
|---|---|
| **Value Data Column** | Gets or sets a data column name that indicates a value of data |
| **Value** | Gets or sets an expression of a value. For example: {Order.Value} |
| **List of Values** | Gets or sets an expression that indicates a list of values. For example: 1;2;3 |

## Line, Scatter Line Series Properties

**1. Data**

| Property Name | Description |
|---|---|
| **Filters** | Gets or sets a collection of filters |
| **Format** | Gets or sets a data format in what series labels will be shown |
| **Sort by** | Gets or sets a selection of data sorting by values, arguments, or without sorting |
| **Sort Direction** | Gets or sets a direction of sorting |
| **Auto Series Key Data Column** | Gets or sets data column name with the key-value that is used to create series automatically |
| **Auto Series Color Data Column** | Gets or sets a data column name that defines color of automatically created series. The color should be represented as a string |
| **Auto Series Title Data Column** | Gets or sets a data column name that defines a title of automatically created series |

**2. Appearance**

| Property Name | Description |
|---|---|
| **Labels Offset** | Gets or sets vertical offset of labels in relation to its first position |
| **Lighting** | Gets or sets line lighting |
| **Line Color** | Gets or sets line color |
| **Line Style** | Gets or sets line style |
| **Line Width** | Gets or sets line width |
| **Marker Color** | Gets or sets marker color |
| **Marker Size** | Gets or sets marker size |
| **Marker Type** | Gets or sets marker type |
| **Show Shadow** | Gets or sets series shadow |

**3. Behavior**

| Property Name | Description |
|---|---|

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| | |
|---|---|
| **Show Marker** | Gets or sets marker showing |
| **Y Axis** | Gets or sets axis to what a series is assigned |
| **Series Labels** | Gets or sets series labels for this series |
| **Show in Legend** | Gets or sets value that allows showing series label in a legend |
| **Show Series Labels** | Gets or sets which type of series labels will be used: from chart settings or from settings from the series |
| **Title** | Gets or sets series title |

**4. Argument**

| Property Name | Description |
|---|---|
| **Argument Data Column** | Gets or sets a data column name that indicates a value of an argument |
| **Argument** | Gets or sets an expression of an argument. For example: {Order. Argument} |
| **List of Arguments** | Gets or sets an expression that indicates a list of arguments. For example: 1;2;3 |

**5. Value**

| Property Name | Description |
|---|---|
| **Value Data Column** | Gets or sets a data column name that indicates a value of data |
| **Value** | Gets or sets an expression of a value. For example: {Order.Value} |
| **List of Values** | Gets or sets an expression that indicates a list of values. For example: 1;2;3 |

## Stepped Line Series Properties

**1. Data**

| Property Name | Description |
|---|---|
| **Filters** | Gets or sets a collection of filters |
| **Format** | Gets or sets a data format in what series labels will be shown |
| **Sort by** | Gets or sets a selection of data sorting by values, arguments, or without sorting |
| **Sort Direction** | Gets or sets direction of sorting |
| **Auto Series Key Data Column** | Gets or sets data column name with the key-value that is used to create series automatically |
| **Auto Series Color Data** | Gets or sets a data column name that defines color of automatically |

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| | |
|---|---|
| **Column** | created series. The color should be represented as a string |
| **Auto Series Title Data Column** | Gets or sets a data column name that defines a title of automatically created series |

**2. Appearance**

| Property Name | Description |
|---|---|
| **Labels Offset** | Gets or sets vertical offset of labels in relation to its first position |
| **Lighting** | Gets or sets line lighting |
| **Line Color** | Gets or sets line color |
| **Line Style** | Gets or sets line style |
| **Line Width** | Gets or sets line width |
| **Marker Color** | Gets or sets marker color |
| **Marker Size** | Gets or sets marker size |
| **Marker Type** | Gets or sets marker type |
| **Show Shadow** | Gets or sets whether a shadow must be shown |

**3. Behavior**

| Property Name | Description |
|---|---|
| **Point at Center** | Gets or sets showing a value by the center of a line |
| **Show Marker** | Gets or sets marker showing |
| **Y Axis** | Gets or sets axis to what a series is assigned |
| **Series Labels** | Gets or sets series labels for this series |
| **Show in Legend** | Gets or sets value that allows showing series label in a legend |
| **Show Series Labels** | Gets or sets which type of series labels will be used: from chart settings or from settings from the series |
| **Title** | Gets or sets a series title |

**4. Argument**

| Property Name | Description |
|---|---|
| **Argument Data Column** | Gets or sets a data column name that indicates a value of an argument |
| **Argument** | Gets or sets an expression of an argument. For example: {Order. Argument} |
| **List of Arguments** | Gets or sets an expression that indicates a list of arguments. For |

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| | |
|---|---|
| | example: 1;2;3 |

**5. Value**

| Property Name | Description |
|---|---|
| **Value Data Column** | Gets or sets a data column name that indicates a value of data |
| **Value** | Gets or sets an expression of a value. For example: {Order.Value} |
| **List of Values** | Gets or sets an expression that indicates a list of values. For example: 1;2;3 |

## Spline, Scatter Spline Series Properties

**1. Data**

| Property Name | Description |
|---|---|
| **Filters** | Gets or sets a collection of filters |
| **Format** | Gets or sets a data format in what series labels will be shown |
| **Sort by** | Gets or sets a selection of data sorting by values, arguments, or without sorting |
| **Sort Direction** | Gets or sets direction of sorting |
| **Auto Series Key Data Column** | Gets or sets data column name with the key-value that is used to create series automatically |
| **Auto Series Color Data Column** | Gets or sets a data column name that defines color of automatically created series. The color should be represented as a string |
| **Auto Series Title Data Column** | Gets or sets a data column name that defines a title of automatically created series |

**2. Appearance**

| Property Name | Description |
|---|---|
| **Labels Offset** | Gets or sets vertical offset of labels in relation to its first position |
| **Lighting** | Gets or sets line lighting |
| **Line Color** | Gets or sets line color |
| **Line Style** | Gets or sets line style |
| **Line Width** | Gets or sets line width |
| **Marker Color** | Gets or sets marker color |
| **Marker Size** | Gets or sets marker size |
| **Marker Type** | Gets or sets marker type |

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| | |
|---|---|
| **Show Shadow** | Gets or sets whether a shadow must be shown |

**3. Behavior**

| Property Name | Description |
|---|---|
| **Show Marker** | Gets or sets marker showing |
| **Tension** | Gets or sets tension of a line |
| **Y Axis** | Gets or sets axis to what a series is assigned |
| **Series Labels** | Gets or sets series labels for this series |
| **Show in Legend** | Gets or sets value that allows showing series label in a legend |
| **Show Series Labels** | Gets or sets which type of series labels will be used: from chart settings or from settings from the series |
| **Title** | Gets or sets a series title |

**4. Argument**

| Property Name | Description |
|---|---|
| **Argument Data Column** | Gets or sets a data column name that indicates a value of an argument |
| **Argument** | Gets or sets an expression of an argument. For example: {Order. Argument} |
| **List of Arguments** | Gets or sets an expression that indicates a list of arguments. For example: 1;2;3 |

**5. Value**

| Property Name | Description |
|---|---|
| **Value Data Column** | Gets or sets a data column name that indicates a value of data |
| **Value** | Gets or sets an expression of a value. For example: {Order.Value} |
| **List of Values** | Gets or sets an expression that indicates a list of values. For example: 1;2;3 |

## Area Series Properties

**1. Data**

| Property Name | Description |
|---|---|
| **Filters** | Gets or sets a collection of filters |
| **Format** | Gets or sets a data format in what series labels will be shown |
| **Sort by** | Gets or sets a selection of data sorting by values, arguments, or |

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| | |
|---|---|
| | without sorting |
| **Sort Direction** | Gets or sets direction of sorting |
| **Auto Series Key Data Column** | Gets or sets data column name with the key-value that is used to create series automatically |
| **Auto Series Color Data Column** | Gets or sets a data column name that defines color of automatically created series. The color should be represented as a string |
| **Auto Series Title Data Column** | Gets or sets a data column name that defines a title of automatically created series |

**2. Appearance**

| Property Name | Description |
|---|---|
| **Brush** | Gets or sets a brush |
| **Labels Offset** | Gets or sets vertical offset of labels in relation to its first position |
| **Lighting** | Gets or sets line lighting |
| **Line Color** | Gets or sets line color |
| **Line Style** | Gets or sets line style |
| **Line Width** | Gets or sets line width |
| **Marker Color** | Gets or sets marker color |
| **Marker Size** | Gets or sets marker size |
| **Marker Type** | Gets or sets marker type |
| **Show Shadow** | Gets or sets whether a shadow must be shown |

**3. Behavior**

| Property Name | Description |
|---|---|
| **Show Marker** | Gets or sets marker showing |
| **Y Axis** | Gets or sets axis to what a series is assigned |
| **Series Labels** | Gets or sets series labels for this series |
| **Show in Legend** | Gets or sets value that allows showing series label in a legend |
| **Show Series Labels** | Gets or sets which type of series labels will be used: from chart settings or from settings from the series |
| **Title** | Gets or sets a series title |

**4. Argument**

| Property Name | Description |
|---|---|

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| | |
|---|---|
| **Argument Data Column** | Gets or sets a data column name that indicates a value of an argument |
| **Argument** | Gets or sets an expression of an argument. For example: {Order. Argument} |
| **List of Arguments** | Gets or sets an expression that indicates a list of arguments. For example: 1;2;3 |

**5. Value**

| Property Name | Description |
|---|---|
| **Value Data Column** | Gets or sets a data column name that indicates a value of data |
| **Value** | Gets or sets an expression of a value. For example: {Order.Value} |
| **List of Values** | Gets or sets an expression that indicates a list of values. For example: 1;2;3 |

## Stepped Area Series Properties

**1. Data**

| Property Name | Description |
|---|---|
| **Filters** | Gets or sets a collection of filters |
| **Format** | Gets or sets a data format in what series labels will be shown |
| **Sort by** | Gets or sets a selection of data sorting by values, arguments, or without sorting |
| **Sort Direction** | Gets or sets direction of sorting |
| **Auto Series Key Data Column** | Gets or sets data column name with the key-value that is used to create series automatically |
| **Auto Series Color Data Column** | Gets or sets a data column name that defines color of automatically created series. The color should be represented as a string |
| **Auto Series Title Data Column** | Gets or sets a data column name that defines a title of automatically created series |

**2. Appearance**

| Property Name | Description |
|---|---|
| **Brush** | Gets or sets a brush |
| **Labels Offset** | Gets or sets vertical offset of labels in relation to its first position |
| **Lighting** | Gets or sets line lighting |
| **Line Color** | Gets or sets line color |

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| | |
|---|---|
| **Line Style** | Gets or sets line style |
| **Line Width** | Gets or sets line width |
| **Marker Color** | Gets or sets marker color |
| **Marker Size** | Gets or sets marker size |
| **Marker Type** | Gets or sets marker type |
| **Show Shadow** | Gets or sets whether a shadow must be shown |

**3. Behavior**

| Property Name | Description |
|---|---|
| **Point at Center** | Gets or sets showing a value by the center of a line |
| **Show Marker** | Gets or sets marker showing |
| **Y Axis** | Gets or sets axis to what a series is assigned |
| **Series Labels** | Gets or sets series labels for this series |
| **Show in Legend** | Gets or sets value that allows showing series label in a legend |
| **Show Series Labels** | Gets or sets which type of series labels will be used: from chart settings or from settings from the series |
| **Title** | Gets or sets a series title |

**4. Argument**

| Property Name | Description |
|---|---|
| **Argument Data Column** | Gets or sets a data column name that indicates a value of an argument |
| **Argument** | Gets or sets an expression of an argument. For example: {Order. Argument} |
| **List of Arguments** | Gets or sets an expression that indicates a list of arguments. For example: 1;2;3 |

**5. Value**

| Property Name | Description |
|---|---|
| **Value Data Column** | Gets or sets a data column name that indicates a value of data |
| **Value** | Gets or sets an expression of a value. For example: {Order.Value} |
| **List of Values** | Gets or sets an expression that indicates a list of values. For example: 1;2;3 |

## Spline Area Series Properties

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**1. Data**

| Property Name | Description |
|---|---|
| **Filters** | Gets or sets a collection of filters |
| **Format** | Gets or sets a data format in what series labels will be shown |
| **Sort by** | Gets or sets a selection of data sorting by values, arguments, or without sorting |
| **Sort Direction** | Gets or sets direction of sorting |
| **Auto Series Key Data Column** | Gets or sets data column name with the key-value that is used to create series automatically |
| **Auto Series Color Data Column** | Gets or sets a data column name that defines color of automatically created series. The color should be represented as a string |
| **Auto Series Title Data Column** | Gets or sets a data column name that defines a title of automatically created series |

**2. Appearance**

| Property Name | Description |
|---|---|
| **Brush** | Gets or sets a brush |
| **Labels Offset** | Gets or sets vertical offset of labels in relation to its first position |
| **Lighting** | Gets or sets line lighting |
| **Line Color** | Gets or sets line color |
| **Line Style** | Gets or sets line style |
| **Line Width** | Gets or sets line width |
| **Marker Color** | Gets or sets marker color |
| **Marker Size** | Gets or sets marker size |
| **Marker Type** | Gets or sets marker type |
| **Show Shadow** | Gets or sets whether a shadow must be shown |

**3. Behavior**

| Property Name | Description |
|---|---|
| **Show Marker** | Gets or sets marker showing |
| **Tension** | Gets or sets tension of a line |
| **Y Axis** | Gets or sets axis to what a series is assigned |
| **Series Labels** | Gets or sets series labels for this series |
| **Show in Legend** | Gets or sets value that allows showing series label in a legend |

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| | |
|---|---|
| **Show Series Labels** | Gets or sets which type of series labels will be used: from chart settings or from settings from the series |
| **Title** | Gets or sets a series title |

**4. Argument**

| Property Name | Description |
|---|---|
| **Argument Data Column** | Gets or sets a data column name that indicates a value of an argument |
| **Argument** | Gets or sets an expression of an argument. For example: {Order. Argument} |
| **List of Arguments** | Gets or sets an expression that indicates a list of arguments. For example: 1;2;3 |

**5. Value**

| Property Name | Description |
|---|---|
| **Value Data Column** | Gets or sets a data column name that indicates a value of data |
| **Value** | Gets or sets an expression of a value. For example: {Order.Value} |
| **List of Values** | Gets or sets an expression that indicates a list of values. For example: 1;2;3 |

## Stacked Line, Full-Stacked Line Series Properties

**1. Data**

| Property Name | Description |
|---|---|
| **Filters** | Gets or sets a collection of filters |
| **Format** | Gets or sets a data format in what series labels will be shown |
| **Sort by** | Gets or sets a selection of data sorting by values, arguments, or without sorting |
| **Sort Direction** | Gets or sets direction of sorting |
| **Auto Series Key Data Column** | Gets or sets data column name with the key-value that is used to create series automatically |
| **Auto Series Color Data Column** | Gets or sets a data column name that defines color of automatically created series. The color should be represented as a string |
| **Auto Series Title Data Column** | Gets or sets a data column name that defines a title of automatically created series |

**2. Appearance**

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| Property Name | Description |
|---|---|
| **Lighting** | Gets or sets line lighting |
| **Line Color** | Gets or sets line color |
| **Line Style** | Gets or sets line style |
| **Line Width** | Gets or sets line width |
| **Marker Color** | Gets or sets marker color |
| **Marker Size** | Gets or sets marker size |
| **Marker Type** | Gets or sets marker type |
| **Show Shadow** | Gets or sets whether a shadow must be shown |

**3. Behavior**

| Property Name | Description |
|---|---|
| **Show Marker** | Gets or sets marker showing |
| **Y Axis** | Gets or sets axis to what a series is assigned |
| **Series Labels** | Gets or sets series labels for this series |
| **Show in Legend** | Gets or sets value that allows showing series label in a legend |
| **Show Series Labels** | Gets or sets which type of series labels will be used: from chart settings or from settings from the series |
| **Title** | Gets or sets a series title |

**4. Argument**

| Property Name | Description |
|---|---|
| **Argument Data Column** | Gets or sets a data column name that indicates a value of an argument |
| **Argument** | Gets or sets an expression of an argument. For example: {Order. Argument} |
| **List of Arguments** | Gets or sets an expression that indicates a list of arguments. For example: 1;2;3 |

**5. Value**

| Property Name | Description |
|---|---|
| **Value Data Column** | Gets or sets a data column name that indicates a value of data |
| **Value** | Gets or sets an expression of a value. For example: {Order.Value} |
| **List of Values** | Gets or sets an expression that indicates a list of values. For example: 1;2;3 |

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## Stacked Spline, Full-Stacked Spline Series Properties

**1. Data**

| Property Name | Description |
|---|---|
| **Filters** | Gets or sets a collection of filters |
| **Format** | Gets or sets a data format in what series labels will be shown |
| **Sort by** | Gets or sets a selection of data sorting by values, arguments, or without sorting |
| **Sort Direction** | Gets or sets direction of sorting |
| **Auto Series Key Data Column** | Gets or sets data column name with the key-value that is used to create series automatically |
| **Auto Series Color Data Column** | Gets or sets a data column name that defines color of automatically created series. The color should be represented as a string |
| **Auto Series Title Data Column** | Gets or sets a data column name that defines a title of automatically created series |

**2. Appearance**

| Property Name | Description |
|---|---|
| **Lighting** | Gets or sets line lighting |
| **Line Color** | Gets or sets line color |
| **Line Style** | Gets or sets line style |
| **Line Width** | Gets or sets line width |
| **Marker Color** | Gets or sets marker color |
| **Marker Size** | Gets or sets marker size |
| **Marker Type** | Gets or sets marker type |
| **Show Shadow** | Gets or sets whether a shadow must be shown |

**3. Behavior**

| Property Name | Description |
|---|---|
| **Show Marker** | Gets or sets marker showing |
| **Tension** | Gets or sets tension of a line |
| **Y Axis** | Gets or sets axis to what a series is assigned |
| **Series Labels** | Gets or sets series labels for this series |
| **Show in Legend** | Gets or sets value that allows showing series label in a legend |

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| | |
|---|---|
| **Show Series Labels** | Gets or sets which type of series labels will be used: from chart settings or from settings from the series |
| **Title** | Gets or sets a series title |

**4. Argument**

| Property Name | Description |
|---|---|
| **Argument Data Column** | Gets or sets a data column name that indicates a value of an argument |
| **Argument** | Gets or sets an expression of an argument. For example: {Order. Argument} |
| **List of Arguments** | Gets or sets an expression that indicates a list of arguments. For example: 1;2;3 |

**5. Value**

| Property Name | Description |
|---|---|
| **Value Data Column** | Gets or sets a data column name that indicates a value of data |
| **Value** | Gets or sets an expression of a value. For example: {Order.Value} |
| **List of Values** | Gets or sets an expression that indicates a list of values. For example: 1;2;3 |

## Stacked Area, Full-Stacked Area Series Properties

**1. Data**

| Property Name | Description |
|---|---|
| **Filters** | Gets or sets a collection of filters |
| **Format** | Gets or sets a data format in what series labels will be shown |
| **Sort by** | Gets or sets a selection of data sorting by values, arguments, or without sorting |
| **Sort Direction** | Gets or sets direction of sorting |
| **Auto Series Key Data Column** | Gets or sets data column name with the key-value that is used to create series automatically |
| **Auto Series Color Data Column** | Gets or sets a data column name that defines color of automatically created series. The color should be represented as a string |
| **Auto Series Title Data Column** | Gets or sets a data column name that defines a title of automatically created series |

**2. Appearance**

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| Property Name | Description |
|---|---|
| **Brush** | Gets or sets a brush |
| **Lighting** | Gets or sets line lighting |
| **Line Color** | Gets or sets line color |
| **Line Style** | Gets or sets line style |
| **Line Width** | Gets or sets line width |
| **Marker Color** | Gets or sets marker color |
| **Marker Size** | Gets or sets marker size |
| **Marker Type** | Gets or sets marker type |
| **Show Shadow** | Gets or sets whether a shadow must be shown |

**3. Behavior**

| Property Name | Description |
|---|---|
| **Show Marker** | Gets or sets marker showing |
| **Y Axis** | Gets or sets axis to what a series is assigned |
| **Series Labels** | Gets or sets series labels for this series |
| **Show in Legend** | Gets or sets value that allows showing series label in a legend |
| **Show Series Labels** | Gets or sets which type of series labels will be used: from chart settings or from settings from the series |
| **Title** | Gets or sets a series title |

**4. Argument**

| Property Name | Description |
|---|---|
| **Argument Data Column** | Gets or sets a data column name that indicates a value of an argument |
| **Argument** | Gets or sets an expression of an argument. For example: {Order. Argument} |
| **List of Arguments** | Gets or sets an expression that indicates a list of arguments. For example: 1;2;3 |

**5. Value**

| Property Name | Description |
|---|---|
| **Value Data Column** | Gets or sets a data column name that indicates a value of data |
| **Value** | Gets or sets an expression of a value. For example: {Order.Value} |

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| | |
|---|---|
| **List of Values** | Gets or sets an expression that indicates a list of values. For example: 1;2;3 |

## Stacked Spline Area, Full-Stacked Spline Area Series Properties

**1. Data**

| Property Name | Description |
|---|---|
| **Filters** | Gets or sets a collection of filters |
| **Format** | Gets or sets a data format in what series labels will be shown |
| **Sort by** | Gets or sets a selection of data sorting by values, arguments, or without sorting |
| **Sort Direction** | Gets or sets direction of sorting |
| **Auto Series Key Data Column** | Gets or sets data column name with the key-value that is used to create series automatically |
| **Auto Series Color Data Column** | Gets or sets a data column name that defines color of automatically created series. The color should be represented as a string |
| **Auto Series Title Data Column** | Gets or sets a data column name that defines a title of automatically created series |

**2. Appearance**

| Property Name | Description |
|---|---|
| **Brush** | Gets or sets a brush |
| **Lighting** | Gets or sets line lighting |
| **Line Color** | Gets or sets line color |
| **Line Style** | Gets or sets line style |
| **Line Width** | Gets or sets line width |
| **Marker Color** | Gets or sets marker color |
| **Marker Size** | Gets or sets marker size |
| **Marker Type** | Gets or sets marker type |
| **Show Shadow** | Gets or sets whether a shadow must be shown |

**3. Behavior**

| Property Name | Description |
|---|---|
| **Show Marker** | Gets or sets marker showing |
| **Tension** | Gets or sets tension of a line |

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| | |
|---|---|
| **Y Axis** | Gets or sets axis to what a series is assigned |
| **Series Labels** | Gets or sets series labels for this series |
| **Show in Legend** | Gets or sets value that allows showing series label in a legend |
| **Show Series Labels** | Gets or sets which type of series labels will be used: from chart settings or from settings from the series |
| **Title** | Gets or sets a series title |

**4. Argument**

| Property Name | Description |
|---|---|
| **Argument Data Column** | Gets or sets a data column name that indicates a value of an argument |
| **Argument** | Gets or sets an expression of an argument. For example: {Order. Argument} |
| **List of Arguments** | Gets or sets an expression that indicates a list of arguments. For example: 1;2;3 |

**5. Value**

| Property Name | Description |
|---|---|
| **Value Data Column** | Gets or sets a data column name that indicates a value of data |
| **Value** | Gets or sets an expression of a value. For example: {Order.Value} |
| **List of Values** | Gets or sets an expression that indicates a list of values. For example: 1;2;3 |

## Pie, Doughnut Series Properties

**1. Data**

| Property Name | Description |
|---|---|
| **Conditions** | Gets or sets a collection of conditions |
| **Filters** | Gets or sets a collection of filters |
| **Format** | Gets or sets a data format in what series labels will be shown |
| **Sort by** | Gets or sets a selection of data sorting by values, arguments, or without sorting |
| **Sort Direction** | Gets or sets direction of sorting |
| **Auto Series Key Data Column** | Gets or sets data column name with the key-value that is used to create series automatically |
| **Auto Series Color Data Column** | Gets or sets a data column name that defines color of automatically created series. The color should be represented as a string |

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| | |
|---|---|
| **Auto Series Title Data Column** | Gets or sets a data column name that defines a title of automatically created series |

**2. Appearance**

| Property Name | Description |
|---|---|
| **Border Color** | Gets or sets series border color |
| **Brush** | Gets or sets a brush |
| **Diameter** | Gets or sets static diameter of a chart. If the value is zero, then the diameter will be calculated automatically |
| **Lighting** | Gets or sets line lighting |
| **Show Shadow** | Gets or sets whether a shadow must be shown |

**3. Behavior**

| Property Name | Description |
|---|---|
| **Start Angle** | Gets or sets the start angle of chart drawing |
| **Y Axis** | Gets or sets axis to what a series is assigned |
| **Series Labels** | Gets or sets series labels for this series |
| **Show in Legend** | Gets or sets value that allows showing series label in a legend |
| **Show Series Labels** | Gets or sets which type of series labels will be used: from chart settings or from settings from the series |
| **Title** | Gets or sets a series title |
| **Distance** | Gets or sets a distance to pull out a chart slice |
| **Cut Pie List** | Gets or sets a list of pulled out slices |

**4. Argument**

| Property Name | Description |
|---|---|
| **Argument Data Column** | Gets or sets a data column name that indicates a value of an argument |
| **Argument** | Gets or sets an expression of an argument. For example: {Order. Argument} |
| **List of Arguments** | Gets or sets an expression that indicates a list of arguments. For example: 1;2;3 |

**5. Value**

| Property Name | Description |
|---|---|
| **Value Data Column** | Gets or sets a data column name that indicates a value of data |

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| | |
|---|---|
| **Value** | Gets or sets an expression of a value. For example: {Order.Value} |
| **List of Values** | Gets or sets an expression that indicates a list of values. For example: 1;2;3 |

## Gantt Series Properties

**1. Data**

| Property Name | Description |
|---|---|
| **Conditions** | Gets or sets a collection of conditions |
| **Filters** | Gets or sets a collection of filters |
| **Format** | Gets or sets a data format in what series labels will be shown |
| **Sort by** | Gets or sets a selection of data sorting by values, arguments, or without sorting |
| **Sort Direction** | Gets or sets direction of sorting |
| **Auto Series Key Data Column** | Gets or sets data column name with the key-value that is used to create series automatically |
| **Auto Series Color Data Column** | Gets or sets a data column name that defines color of automatically created series. The color should be represented as a string |
| **Auto Series Title Data Column** | Gets or sets a data column name that defines a title of automatically created series |

**2. Appearance**

| Property Name | Description |
|---|---|
| **Border Color** | Gets or sets a border color |
| **Brush** | Gets or sets a brush |
| **Show Shadow** | Gets or sets whether a shadow must be shown |

**3. Behavior**

| Property Name | Description |
|---|---|
| **Show Zeros** | Gets or sets a value that visualizes zero values of series |
| **Width** | Gets or sets a series column width |
| **Y Axis** | Gets or sets axis to what a series is assigned |
| **Series Labels** | Gets or sets series labels for this series |
| **Show in Legend** | Gets or sets value that allows showing series label in a legend |
| **Show Series Labels** | Gets or sets which type of series labels will be used: from chart settings or from settings from the series |

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| | |
|---|---|
| **Title** | Gets or sets a series title |

**4. Argument**

| Property Name | Description |
|---|---|
| **Argument Data Column** | Gets or sets a data column name that indicates a value of an argument |
| **Argument** | Gets or sets an expression of an argument. For example: {Order. Argument} |
| **List of Arguments** | Gets or sets an expression that indicates a list of arguments. For example: 1;2;3 |

**5. Value**

| Property Name | Description |
|---|---|
| **Value Data Column** | Gets or sets a data column name that indicates a value of data |
| **Value** | Gets or sets an expression of a value. For example: {Order.Value} |
| **List of Values** | Gets or sets an expression that indicates a list of values. For example: 1;2;3 |

**6. Value End**

| Property Name | Description |
|---|---|
| **Value Data Column End** | Gets or sets a data column name that indicates a value of data |
| **Value End** | Gets or sets a expression of the end value. For example: {Order. Value} |
| **List of Values End** | Gets or sets an expression that indicates a list of values. For example: 1;2;3 |

## Scatter Series Properties

**1. Data**

| Property Name | Description |
|---|---|
| **Filters** | Gets or sets a collection of filters |
| **Format** | Gets or sets a data format in what series labels will be shown |
| **Sort by** | Gets or sets a selection of data sorting by values, arguments, or without sorting |
| **Sort Direction** | Gets or sets direction of sorting |
| **Auto Series Key Data Column** | Gets or sets data column name with the key-value that is used to create series automatically |

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| | |
|---|---|
| **Auto Series Color Data Column** | Gets or sets a data column name that defines color of automatically created series. The color should be represented as a string |
| **Auto Series Title Data Column** | Gets or sets a data column name that defines a title of automatically created series |

**2. Appearance**

| Property Name | Description |
|---|---|
| **Labels Offset** | Gets or sets vertical offset of labels in relation to its first position |
| **Marker Color** | Gets or sets marker color |
| **Marker Size** | Gets or sets marker size |
| **Marker Type** | Gets or sets marker type |
| **Show Shadow** | Gets or sets whether a shadow must be shown |

**3. Behavior**

| Property Name | Description |
|---|---|
| **Show Marker** | Gets or sets marker showing |
| **Y Axis** | Gets or sets axis to what a series is assigned |
| **Series Labels** | Gets or sets series labels for this series |
| **Show in Legend** | Gets or sets value that allows showing series label in a legend |
| **Show Series Labels** | Gets or sets which type of series labels will be used: from chart settings or from settings from the series |
| **Title** | Gets or sets a series title |

**4. Argument**

| Property Name | Description |
|---|---|
| **Argument Data Column** | Gets or sets a data column name that indicates a value of an argument |
| **Argument** | Gets or sets an expression of an argument. For example: {Order. Argument} |
| **List of Arguments** | Gets or sets an expression that indicates a list of arguments. For example: 1;2;3 |

**5. Value**

| Property Name | Description |
|---|---|
| **Value Data Column** | Gets or sets a data column name that indicates a value of data |
| **Value** | Gets or sets an expression of a value. For example: {Order.Value} |

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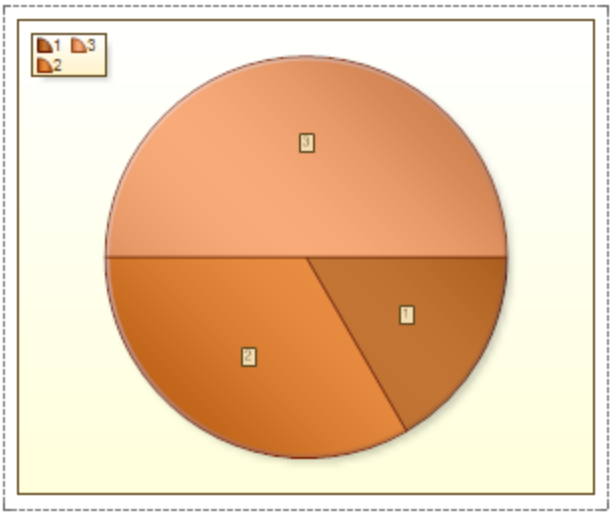
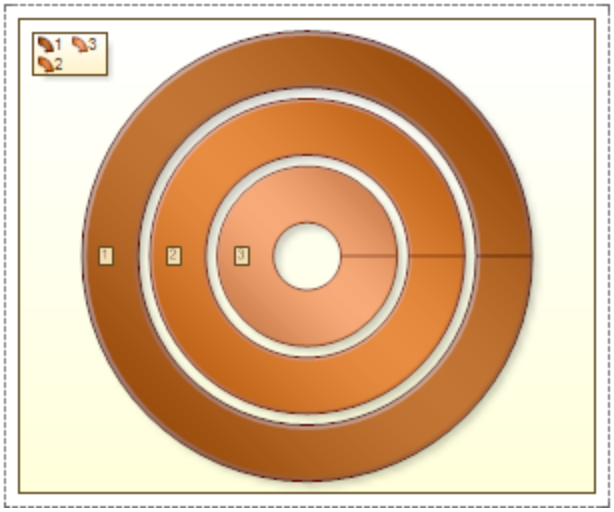
| | |
|---|---|
| **List of Values** | Gets or sets an expression that indicates a list of values. For example: 1;2;3 |

## 5.27.2 Area

Circular area or area without axes is a space where charts can be placed without axes. A circular area includes the main elements of the chart: series, chart title and a legend. In the area without axes the following chart types may be placed: **Pie** and **Doughnut**. The difference between these types of charts is that, for Pie type of a chart, rows are arranged in series. And for the Doughnut chart - rings. The picture below shows an example of a Pie chart, with three series:




As can be seen from the picture, the series are arranged consecutively in a clockwise direction. In the Doughnut chart, the number of rows will match the number of rings. The picture below shows an example of a chart that has three rows:

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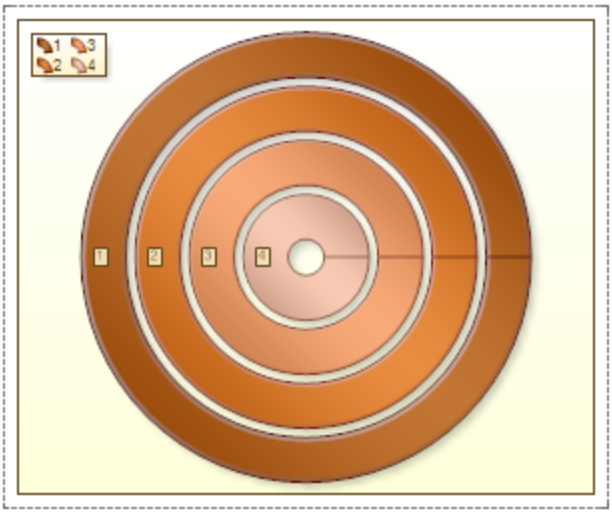
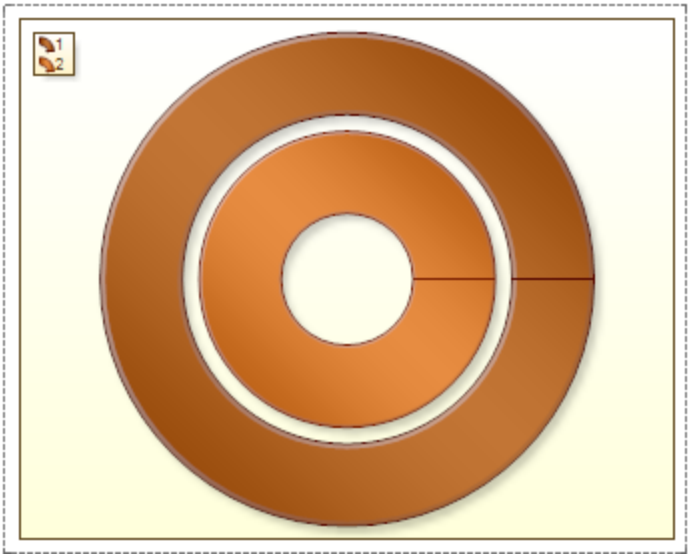
### 5.27.2.1 Doughnut

**Doughnut** chart is circular chart divided into sectors. It has a blank center and the ability to support multiple statistics as one. Doughnut illustrates proportion. On the picture below the doughnut chart sample is represented:



5.27.2.1.1 Series Labels

**Series Labels** can only be placed in the center on the doughnut chart. The **Series Labels** may have two values: **None** and **Center**. If the **Series Labels** property is set to **None**, then labels are not shown. The picture below shows the doughnut with no labels:



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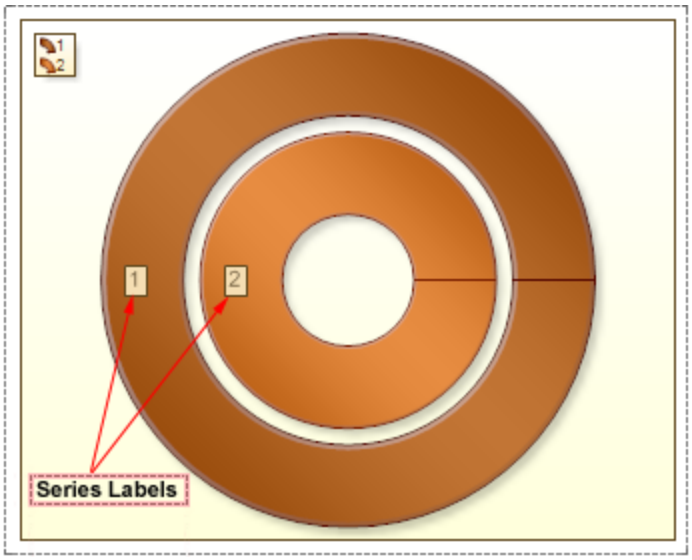
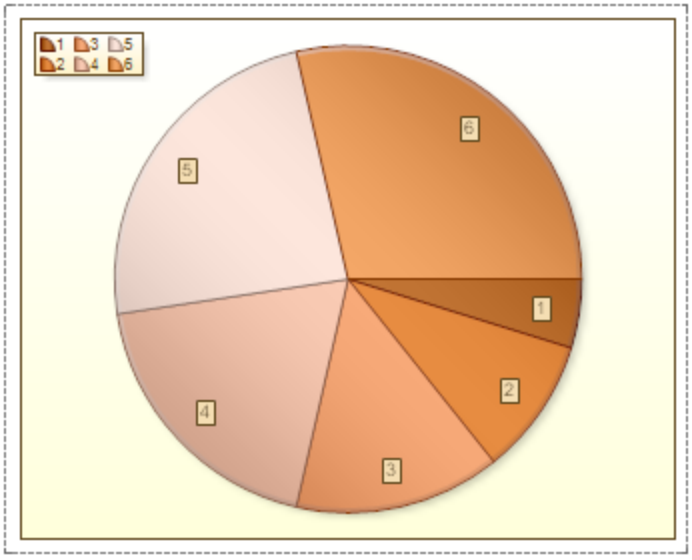
If the **Series Labels** property is set to **Center**, then labels are shown in the center of the chart ring. The picture below shows the doughnut with labels:




### 5.27.2.2 Pie

A **Pie** chart (or a circle graph) is circular chart divided into sectors, illustrating proportion. Each Series is a part of chart. In a pie chart, each sector, is proportional to the quantity it represents. Together, the sectors create a full disk.

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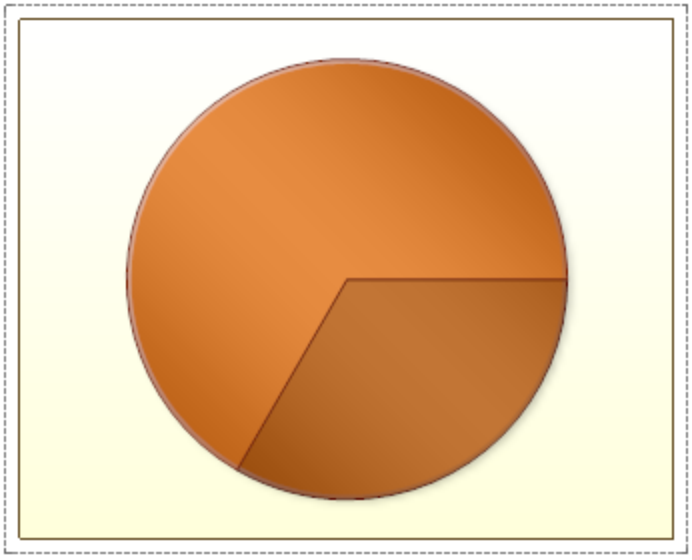
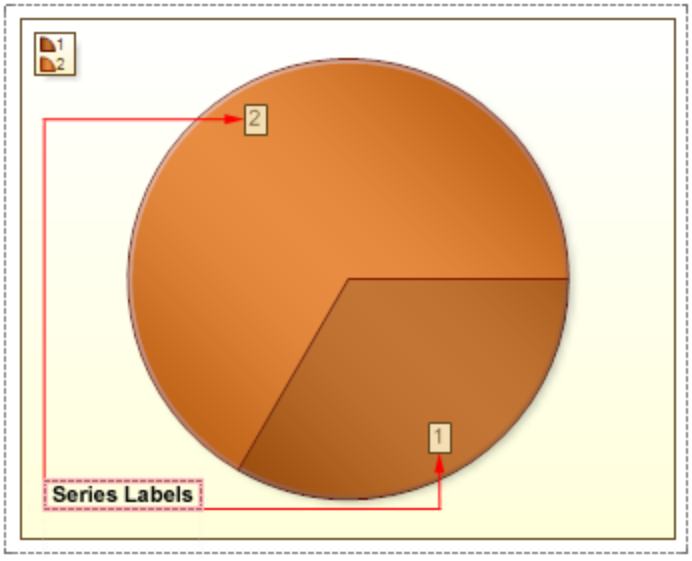
5.27.2.2.1 Series Labels

The location series labels, in the pie chart, depends on the value of the **SeriesLabels** property. This property may take the following values: None, Inside End, Center, Outside, Two Columns.

**None**. Series Labels are not shown. The picture below shows an example of a Pie chart with the **Series Labels** set to **None**:



**Inside End**. Series Labels are displayed inside the slice and far from the center. The picture below shows an example of a Pie chart with the **Series Labels** set to **Inside End**:




**Center**. Series Labels are displayed in the center of the slice. The picture below shows an example of

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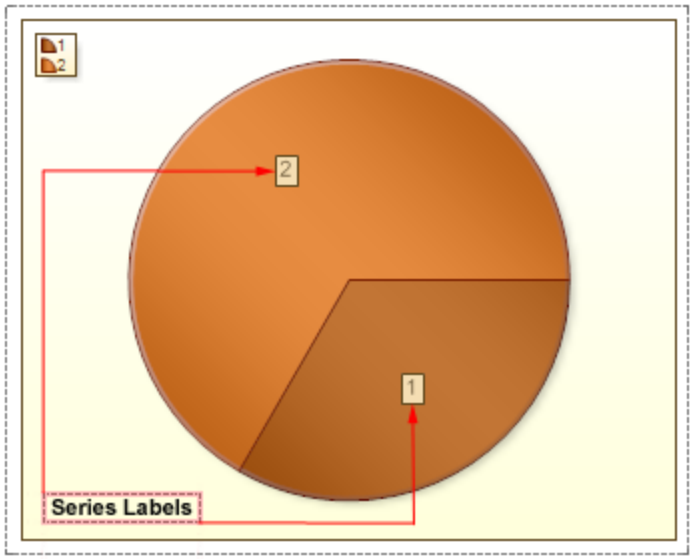
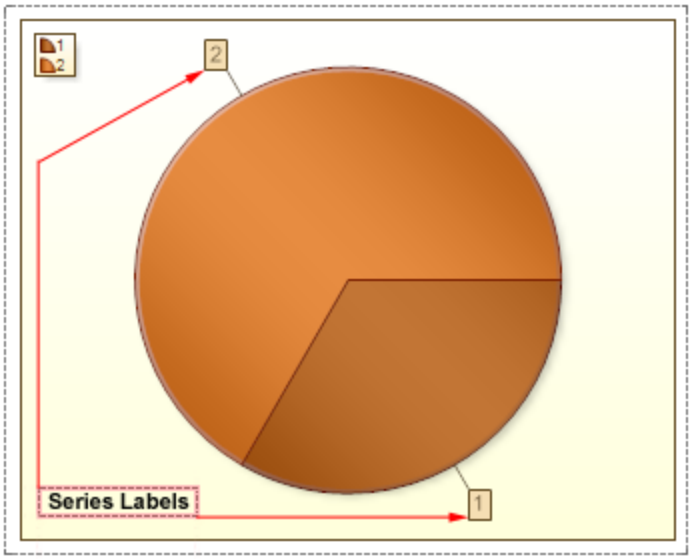
a Pie chart with the **Series Labels** set to **Center**:




**Outside**. Series Labels are displayed outside the chart, but in a Pie area. The picture below shows an example of a Pie chart with the **Series Labels** set to **Outside**:




**Two Columns**. Series Labels are displayed outside the chart in two columns: on the left and right of the chart. The picture below shows an example of a Pie chart with the **Series Labels** set to **Two Columns**:

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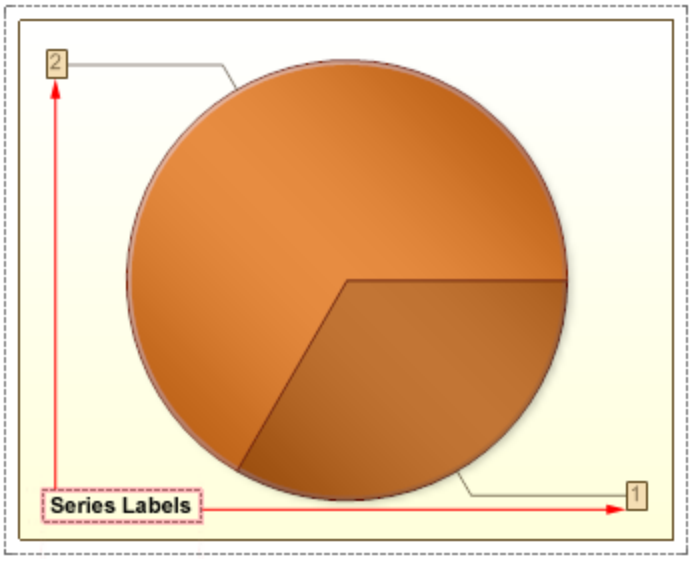
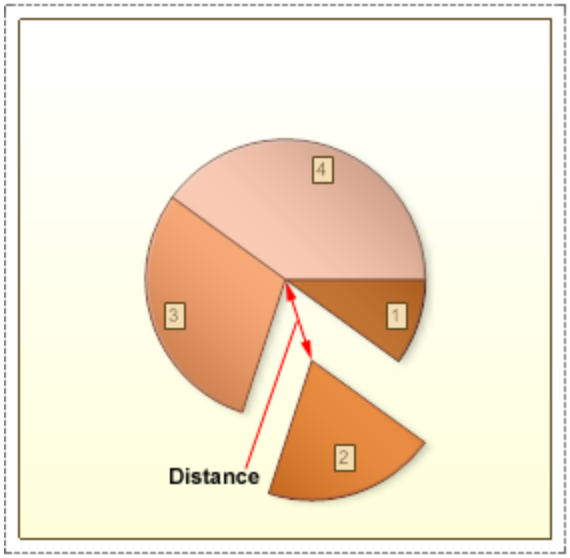



5.27.2.2.2 CutPieList Property

The Pie chart represents an opportunity to display the contribution of each value to a total while emphasizing individual values. To select a segment in a pie chart select and pull out, it is necessary, in the **Series Editor**, to specify values for the **Distance** and **CutPieList** properties of a series. The **Distance** property indicates is the distance from the center of the chart to the nearest point of the pull out segment. The **CutPieList** property has a list of series to be pulled out, separated with **';'**. The picture below shows an example of a pie chart, with the second slice of the first series pulled out. The distance is 60-hundredths of inches:




If the field of the **CutPieList** property is filled, and the field of the **Distance** property is not filled, then the segments will not be pulled out. If the field of the **Distance** property is filled, and the field **CutPieList** property is not filled, then all segments of this series will be pulled out to the distance,

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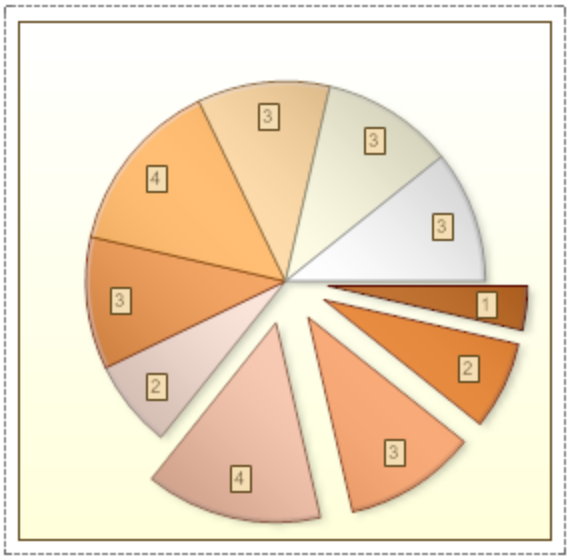
which corresponds to the value of the **Distance** property. The picture below an example of a chart with all segments of the series 1 being pulled out, because the field of the **CutPieList** property was not filled, and the **Distance** property set to 30-hundredths of an inch:

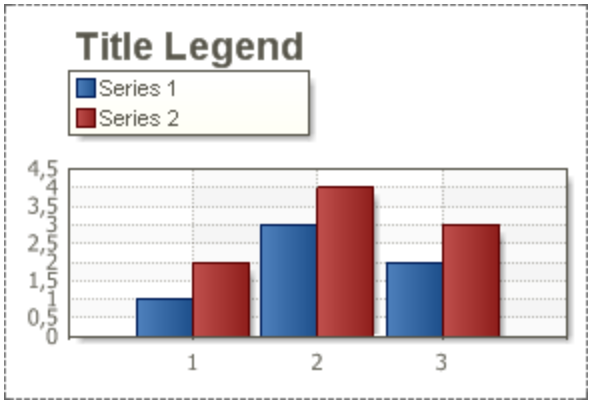



## 5.27.3 Legend

The chart may include a legend. A legend contains a list of the variables appearing in the chart and an example of their appearance. This information allows the data from each variable to be identified in the chart. The legend can be placed at any part of the chart.

### 5.27.3.1 Title Property

The **Title** property of the Legend allows setting the Legend title. The full path to this property is **Legend.Title**. If the field of the **Title** property is not filled then the Legend title is not shown. The **Title** is shown over the Legend. The picture below shows a sample of the Chart with Legend where the "Title Legend" is the Legend title:

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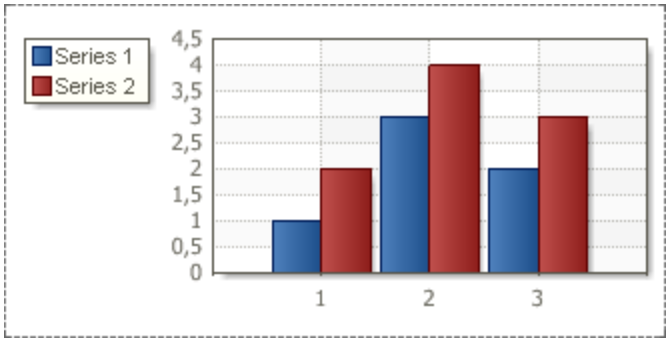
The **Title** property has the following properties:
✓ **TitleColor** - sets the Title color;
✓ **TitleFont** - sets the Title font size and font style.

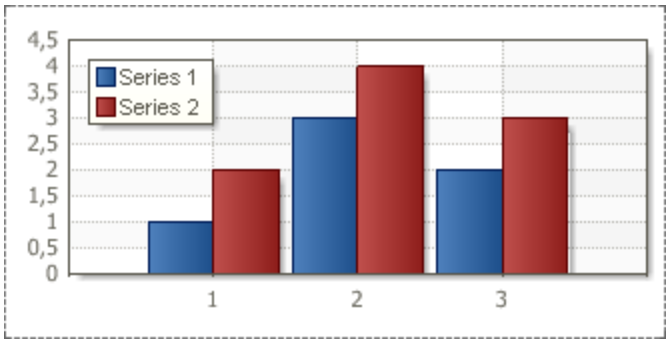
### 5.27.3.2 HorizontalAlignment Property

The **HorizontalAlignment** property of the Legend allows aligning the Legend position horizontally. The full path to this property is **Legend.HorizontalAlignment.** The property has the following values: **Left Out Side**, **Left**, **Center**, **Right**, **Right Out Side**.

Description of values:
» **Left Out Side**. The legend will be placed outside the Chart area on the left. The picture below shows where the Legend will be placed if the **Horizontal Alignment** property is set to **Left Out Side**:




» **Left**. The legend will be placed inside the Chart area on the left. The picture below shows where the Legend will be placed if the **Horizontal Alignment** property is set to **Left**:




» **Center.** The legend will be placed inside the Chart area in the center. The picture below shows where the Legend will be placed if the **Horizontal Alignment** property is set to **Center**:

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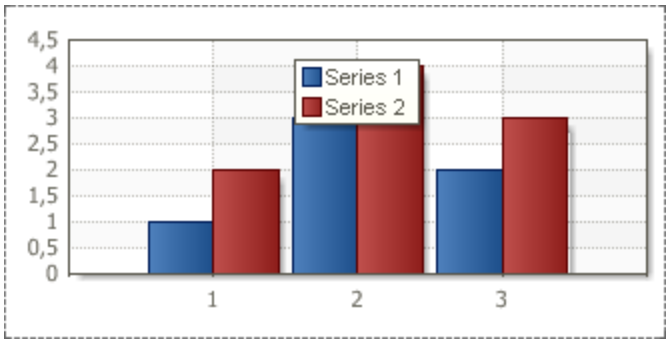
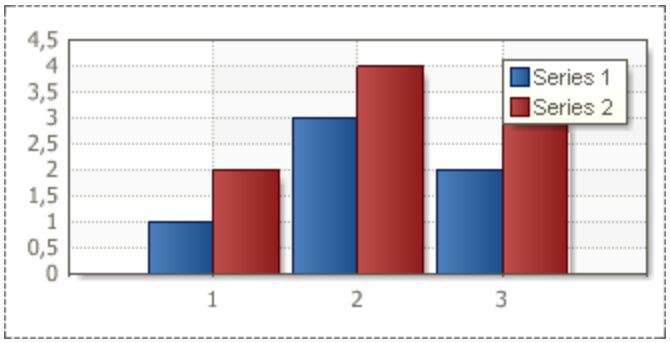
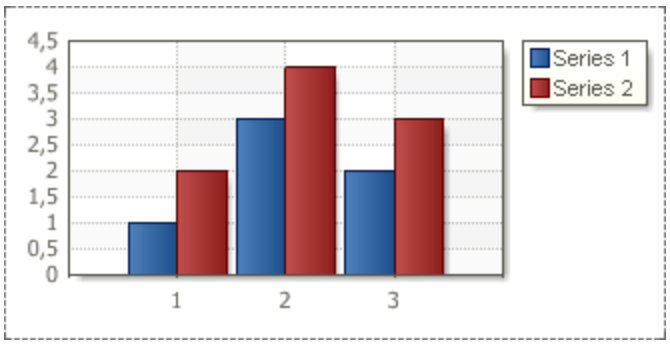



**Right**. The legend will be placed inside the Chart area on the right. The picture below shows where the Legend will be placed if the **Horizontal Alignment** property is set to **Right**:




**Right Out Side**. The legend will be placed out side the Chart area on the right. The picture below shows where the Legend will be placed if the **Horizontal Alignment** property is set to **Right Out Side**:




By default the **HorizontalAlignment** property is set to **Left**.

### 5.27.3.3 VerticalAlignment Property

The **Vertical Alignment** property of the Legend allows aligning the Legend position vertically. The full path to this property is **Legend.VerticalAlignment.** The property has the following values: **Top Out Side**, **Top**, **Center**, **Bottom**, **Bottom Out Side**.

Description of values:

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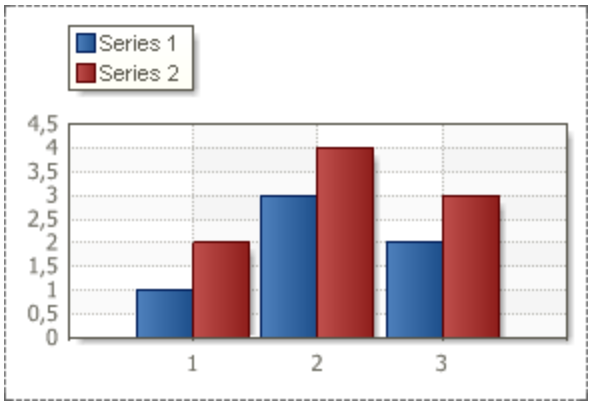
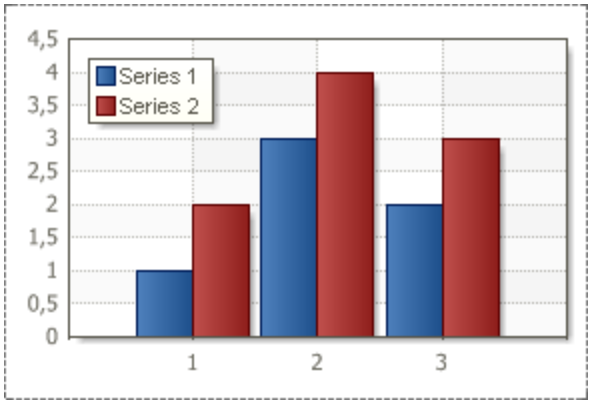
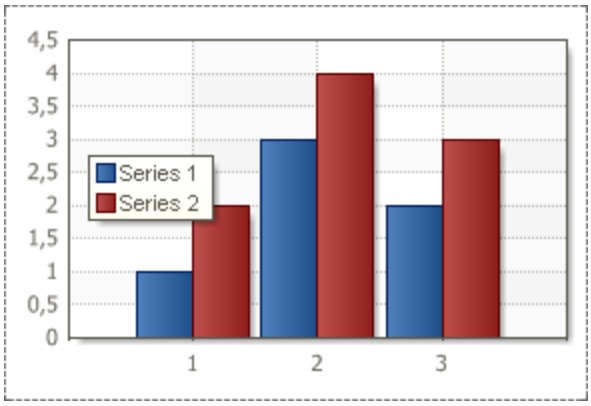
**Top Out Side**. The legend will be placed above and outside the Chart area. The picture below shows where the Legend will be placed if the **Vertical Alignment** property is set to **Top Out Side**:




**Top**. The legend will be placed inside the Chart area on the top. The picture below shows where the Legend will be placed if the **Vertical Alignment** property is set to **Top**:




**Center**. The legend will be placed inside the Chart area and vertically in the center. The picture below shows where the Legend will be placed if the **Vertical Alignment** property is set to **Center**:




**Bottom**. The legend will be placed inside the Chart area on the bottom. The picture below shows where the Legend will be placed if the **Vertical Alignment** property is set to **Bottom**:

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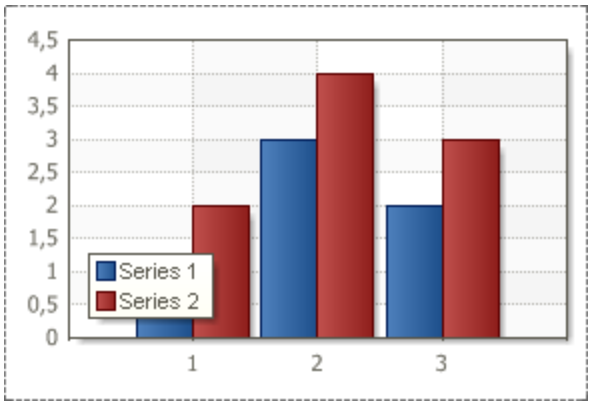
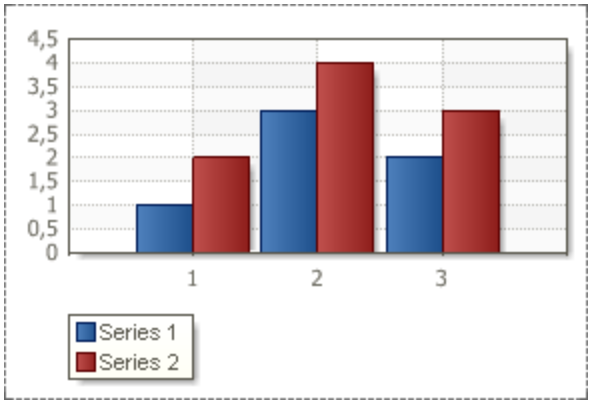



**Bottom Out Side**. The legend will be placed under and outside the Chart area. The picture below shows where the Legend will be placed if the **Vertical Alignment** property is set to **Bottom Out Side**:




By default the **Vertical Alignment** property is set to **Top**.

### 5.27.3.4 HorizontalSpacing and VerticalSpacing Properties

The **Horizontal Spacing** and **Vertical Spacing** properties allow setting the spacing (horizontal and vertical, respectively) between the Legend edge and the information on series. The full paths to these properties is **Legend.HorizontalSpacing** and **Legend.VerticalSpacing**. The picture below shows in arrows the horizontal and vertical spacing between the Legend edge and the Series 1:

These properties can take numeric values, and are required for filling. If values of the **Horizontal**

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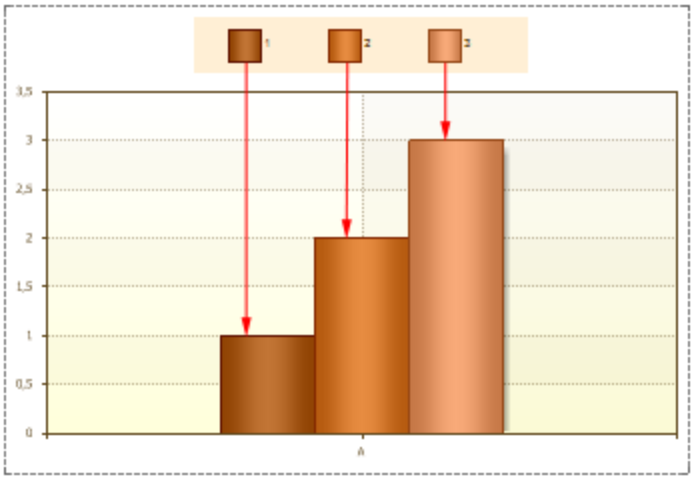
**Spacing** and **Vertical Spacing** properties are negative, then the legend can be unreadable. The minimum value of these properties is 0.

### 5.27.3.5 Marker

**Marker** is an icon that indicates the chert row. The number of markers correspond to the number of rows. On the picture below a sample of chart with three rows and markers for them is shown:



#### 5.27.3.5.1 Direction Property

The **Direction** allows selecting the order of showing markers. The full path to this property is **Legend. Direction.** The property has the following values: **Top to Bottom**, **Bottom to Top**, **Left to Right**, **Right to Left**.

Description of values:
**Top to Bottom**. Markers are shown in the "from top to bottom" order. The picture below shows a sample of the Legend which the **Direction** property is set to **Top to Bottom**:

**Bottom to Top**. Markers are shown in the "from bottom to top" order. The picture below shows a sample of the Legend which the **Direction** property is set to **Bottom to Top**:

**Left to Right**. Markers are shown in the "from left to right" order. The picture below shows a sample of the Legend which the **Direction** property is set to **Left to Right**:

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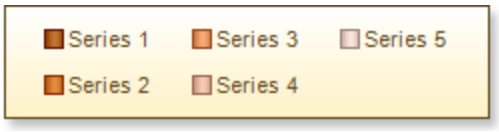
**Right to Left**. Markers are shown in the "from right to left" order. The picture below shows a sample of the Legend which the **Direction** property is set to **Right to Left**:

By default the **Direction** property is set to **Top to Bottom**.

#### 5.27.3.5.2 Columns Property

The **Columns** property allows changing the number of columns vertically or horizontally depending on the value of the **Direction** property. The full path to this property is **Legend.Columns**. The picture below shows a sample of the Legend which markers are split into two horizontal columns (the **Direction** property is set to **Top to Bottom**):




If to set the **Columns** property to **2**, and set the **Direction** property to **Left to Right**, then markers will be split into two vertical columns. The picture below shows a sample of the Legend which markers are split into two vertical columns (the **Direction** property is set to **Left to Right**):

The **Columns** property may have any values more than **0**. This property must be set. It cannot be left empty.

#### 5.27.3.5.3 Marker Alignment Property

The **Marker Alignment** property allows aligning markers either left or right from the "**Series**" name. The full path to this property is **Legend.Marker Alignment.** If the **Marker Alignment** property is set to **Left**, then the marker will be placed on the left from the "**series**" name. The picture below shows a sample of the Legend which the **Marker Alignment** property is set to **Left**:

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If the **Marker Alignment** property is set to **Right**, then the marker will be placed on the right from the "**series**" name. The picture below shows a sample of the Legend which the **Marker Alignment** property is set to **Right**:

By default the **Marker Alignment** property is set to **Left**.

#### 5.27.3.5.4 MarkerVisible Property

The **MarkerVisible** property allows showing/hiding the legend markers. The full path to this property is **Legend.MarkerVisible.** If the **MarkerVisible** property is set to **true**, then markers are shown. The picture below shows a sample of the Legend which the **MarkerVisible** property is set to **true**:

If the **MarkerVisible** property is set to **false**, then the Legend markers are hidden. The picture below shows a sample of the Legend which the **MarkerVisible** property is set to **false**:

By default the **MarkerVisible** is set to **true**.

## 5.27.4 Axes Area

**Axes Area** is a space which includes all chart items such as data rows, axes, chart title, and legend. On the picture below the **Axes Area** is shown:

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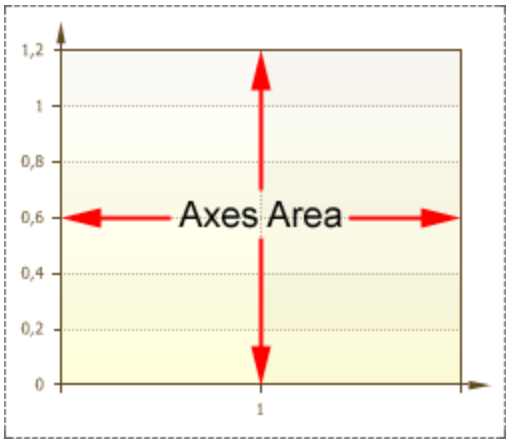
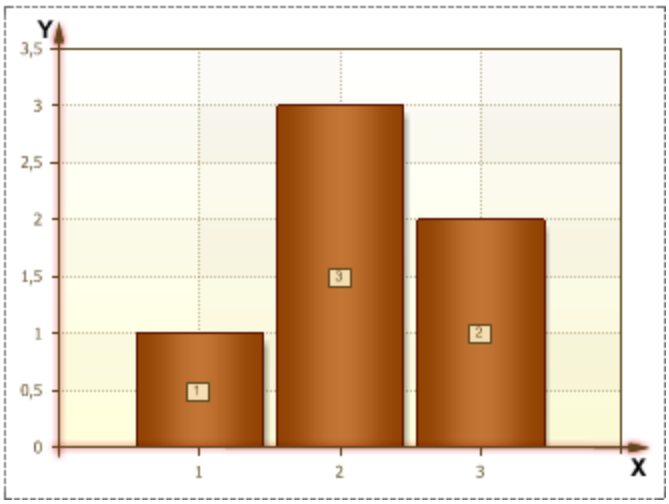



### 5.27.4.1 Axes

**Axes Area** has **X** and **Y** axes. The X axis, as a rule, is the axis of arguments, and the Y axis, is the axis of values.




Besides, the **Axes Area** can contain top and central **X** axis, and right **Y** axis.

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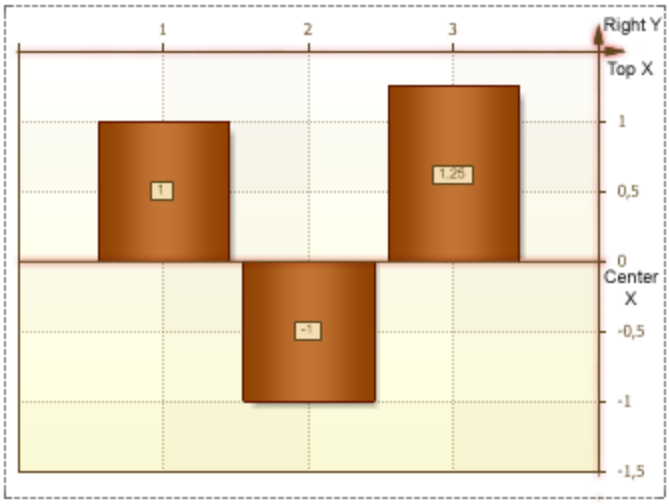
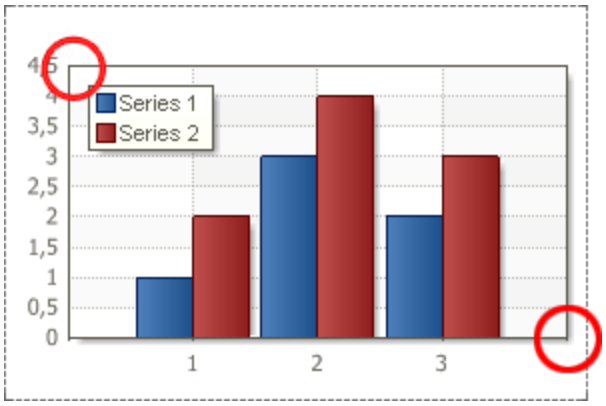



5.27.4.1.1 Arrow Style Property

Each axis has its own direction. The direction is identified with marker (usually it is an arrow). To change the arrow style, use the **Arrow Style** property of an axis**.** The path to this property is **Area.Axes. ArrowStyle**. On the picture below the sample of a rendered chart with the **ArrowStyle** property set to the **None** default value:




As you can see, if the **ArrowStyle** property is set to **None**, then **X Y** axes do not have style. The **ArrowStyle** property can be set to **Triangle.** In this case the arrow style will look like on the picture below:

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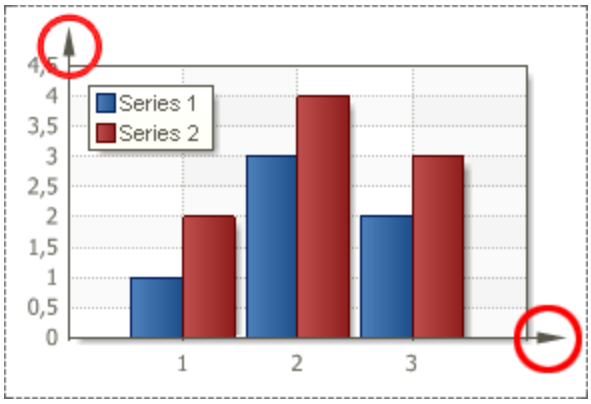
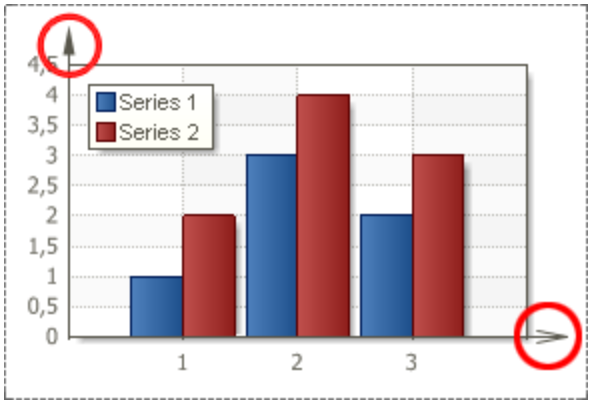



The **ArrowStyle** property can be set for each axis. Each axis may have its own values of the **Arrow Style** property. On the picture below different values of the **ArrowStyle** property of **X** and **Y** axes:




As seen from the picture above, the **ArrowStyle** property, of the **Y** axis is set to **Triangle.** And the **ArrowStyle** property, of the **X** axis is set to **Lines.**

#### 5.27.4.1.2 Labels

Labels are titles of X axis (the axis of the arguments) and Y (the axis values). Labels can take any string value. Any string value is transformed according to the selected format. If the report generator failed to convert a value to the selected format, then a direct string value is output. The picture below shows an example of a chart with arguments of Labels. The Format property is set to N:

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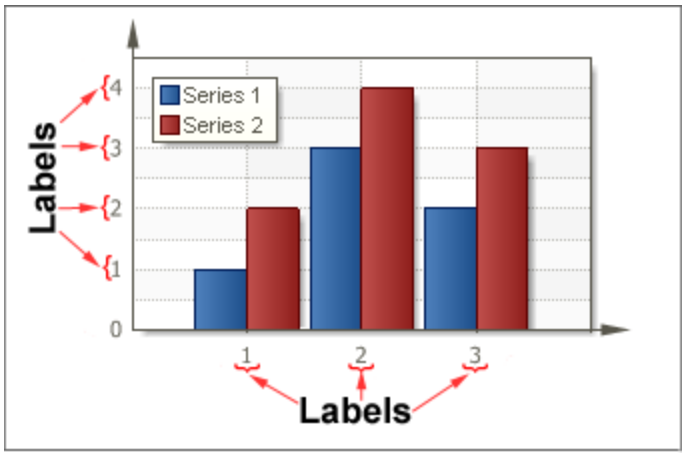
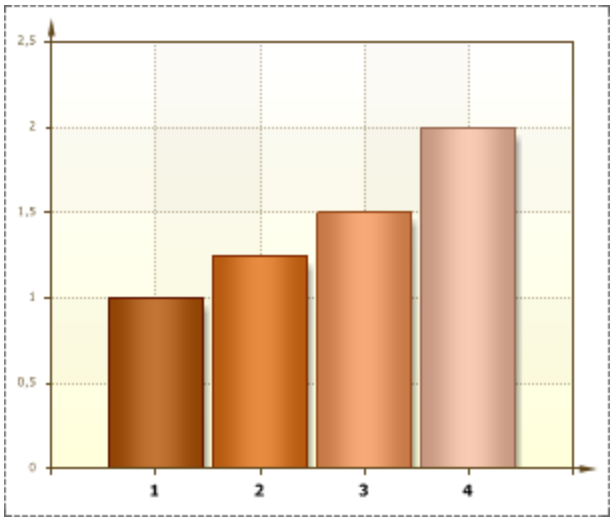



Also, Labels have a number of properties such as:

- **Angle** - sets an angle of inclination of labels;
- **Antialiasing** - sets smooth-edged type of labels;
- **Color** - sets the labels color;
- **Font** - sets the font type of labels;
- **Format** - changes the label format (numeric, percentage etc);
- **Placement** - changes the position of showing Labels;
- **Text before/Text after** - shows a text before/after Labels;
- **Text Alignment** - used for **Y** axis, aligns Labels;
- **Width** - changes the width of Label.

#### 5.27.4.1.2.1 Angle Property

The **Angle** property is used to change the inclination of **Labels**. Specifies the angle, in degrees. The **Angle** property is set separately for each axis. The full path to this property is **Area.Axis.Labels.Angle**. By default, the value of the **Angle** property is set to **0.** So **Labels** are placed as it is shown on the picture below:

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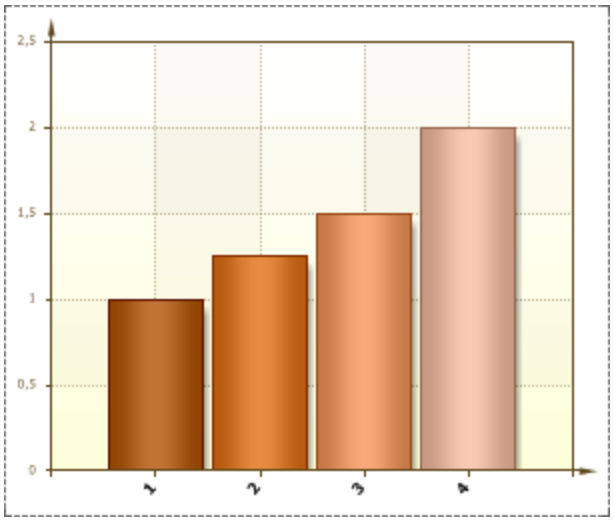
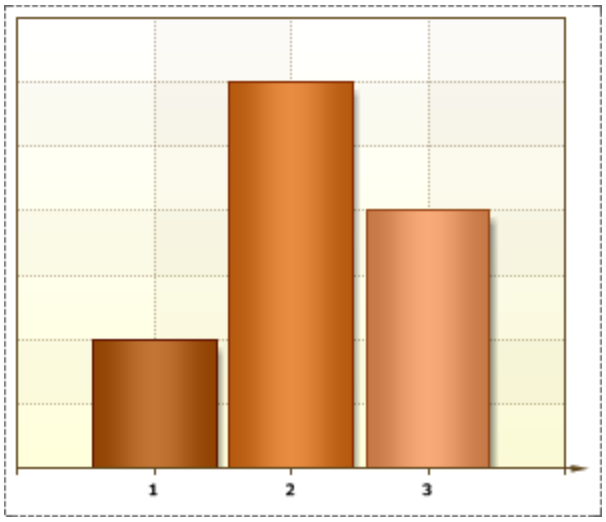
The value of this property can be negative and positive. If the value of the property is negative then Label is inclined clockwise. If the value of the property is positive then Label in inclined anticlockwise. The picture below shows the chart sample, which Angle property by the **X** axis is set to **50**:




5.27.4.1.2.2 Format Property

The **Format** property is used to to format the contents of Labels. The full path to this property is **Area. Axis.Labels.Format.** This property has multiple values.

**Number.** The **N** value of the **Format** property is used for the general display of numbers. When filling the **Format**, after the **N** value, it is possible to specify the number of decimal places that you want to use. If no numbers are specified after **N** then decimal places will be shown only if they are present as a result of calculation. The picture below shows a chart with the **Format** property of Series Labels set to **N**:

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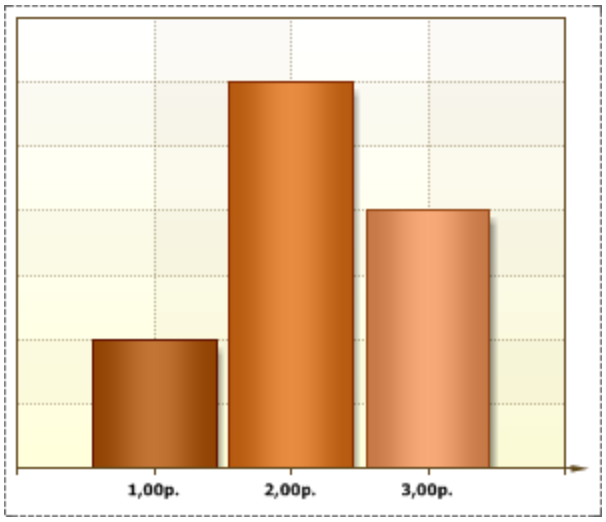
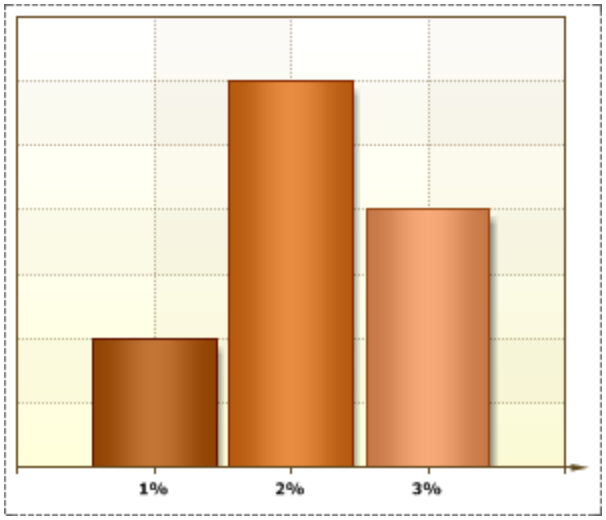
**Currency.** The **C** value of the **Format** property is used to display Labels with a currency symbol. After the **C** value, it is possible to specify the number of decimal places that you want to use. The picture below shows a chart with the **Format** property of Series Labels set to **C**:




**Percentage**. The **P** value of the **Format** property is used to display Labels with percent symbol. After the **P** value, it is possible to specify the number of decimal places that you want to use. The picture below shows a chart with the **Format** property of Series Labels set to **P**:




Date formatting. The **MM/dd/yyyy**, **MMMM dd**, **yyyy MMMM** values of the **Format** property convert values of arguments to date. **MM/dd/yyyy** - the date is shown like "01.20.2010", **MMMM dd** - the date is shown like "September 29", **yyyy MMMM** - the date is shown like "2010 March". The picture below shows a chart and its **Format** property is set to **MM/dd/yyyy**:

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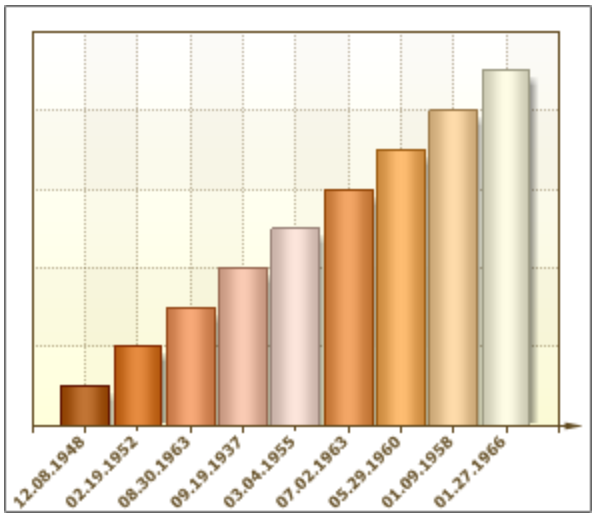
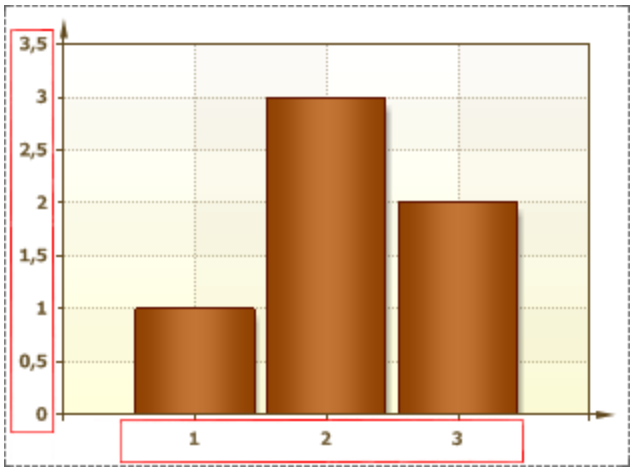



To reset the **Format** property of selected cells, and return to the default format, clear the Format by selecting empty field.

#### 5.27.4.1.2.3 Placement Property

The **Placement** property is used to change position of labels. The full path to this property is **Area.Axis.Labels.Placement**. This property has three values: **One Line**, **Two Lines**, **None**.

**One Line**. In this case, labels are placed in a line horizontally or vertically, depending on the X or Y axis, respectively. The picture below shows an example of a chart, with the **Placement** property set to **One Line** for of X and Y axes:




**Two Lines**. In this case, labels are placed in two lines horizontally or vertically, depending on the X or Y axis, respectively. The picture below shows an example of a chart, with the **Placement** property set to **Two Lines** for of X and Y axes:

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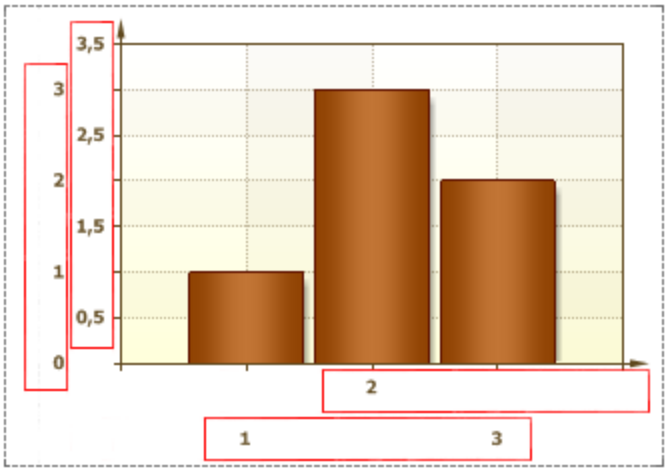
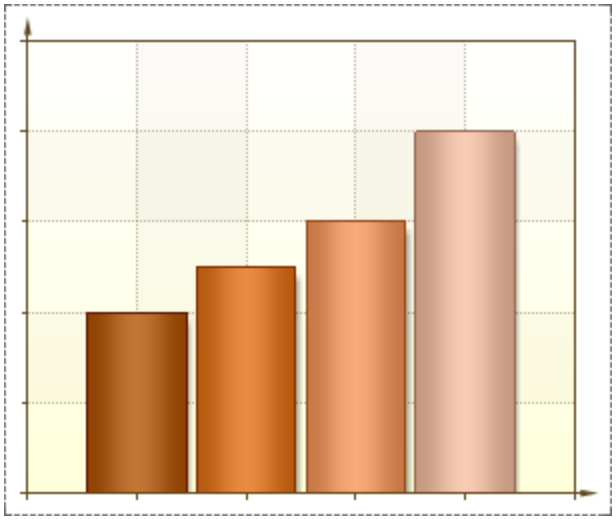



**None**. In the case labels are not shown. The picture below shows an example of a chart, with the **Placement** property set to **None** for of X and Y axes:



By default, the **Placement** property is set to **One Line**.

#### 5.27.4.1.2.4 TextAlignment Property

The **TextAlignment** property is used to align labels on the chart or by Y axis. The full path to this property is **Area.Axis.Labels.TextAlignment**. If the **TextAlignment** property set to **Left**, then labels are aligned by the chart edge. The picture below shows an example of chart with the of **TextAlignment** property set to **Left**:

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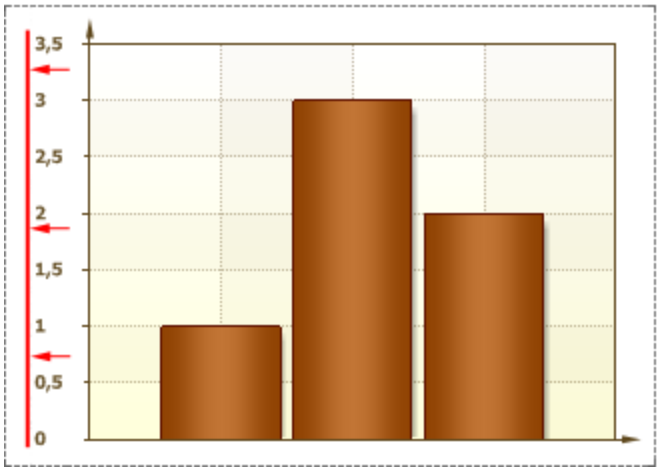
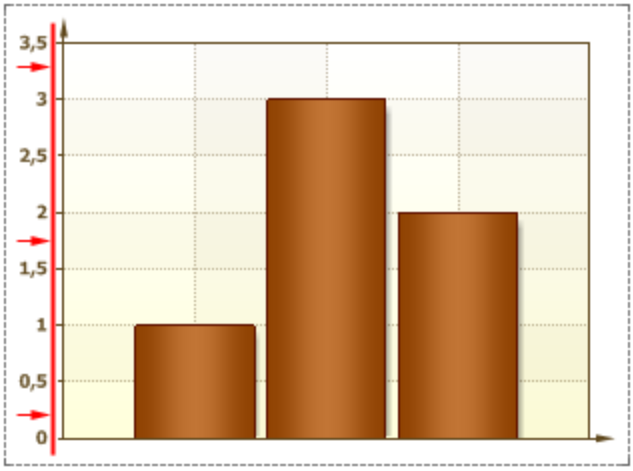



If the **TextAlignment** property set to **Right**, then the labels are aligned by the Y axis. The picture below shows an example of chart with the of **TextAlignment** property set to **Right**:




By default, the **TextAlignment** property is set to **Right**.

5.27.4.1.3 Range Property

The **Range** property is used to display the specified section of a chart. So a part of the chart within the specified values will be shown. The picture below shows a chart with the Range property set to the X-axis from 2 to 4:

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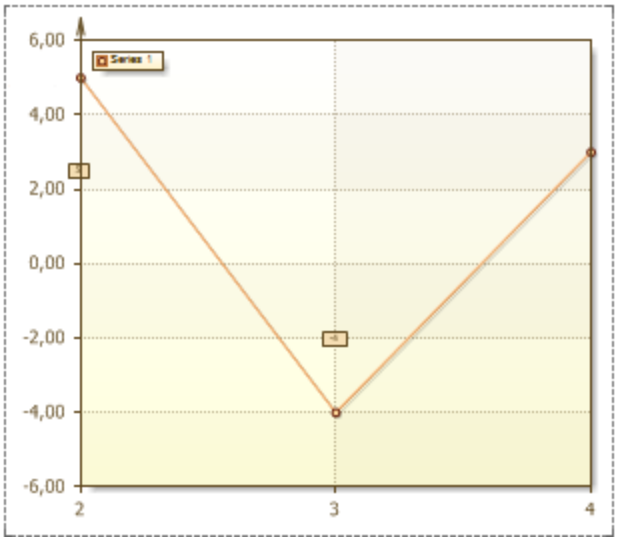
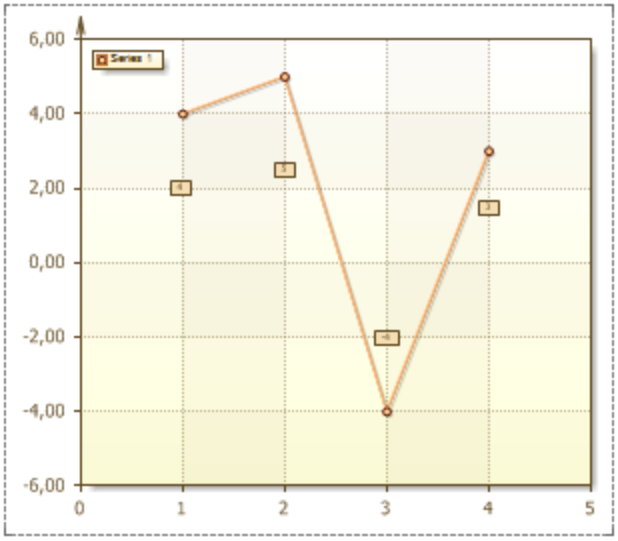



The Range consists of the values of three fields:
**Auto**. If the Auto field is set to true, then a chart is shown entirely, i.e. the range of values will be calculated automatically. The picture below shows an example of it:




If the **Auto** field is set to **false**, then all values of the range which are specified in the **Minimum** and **Maximum** fields are considered. If the **Auto** field is set to **false**, and values the **Minimum** and **Maximum** fields are set to 0, then the chart will be shown entirely.
**Minimum** - sets the beginning of the range.
**Maximum** - sets the end of the range.
If the **Maximum** value is less then the **Minimum** value, then the chart will be displayed entirely.

5.27.4.1.4 Visible Property

The **Visible** property is used to show X and Y axes. The picture below shows a chart with the **Visibility**

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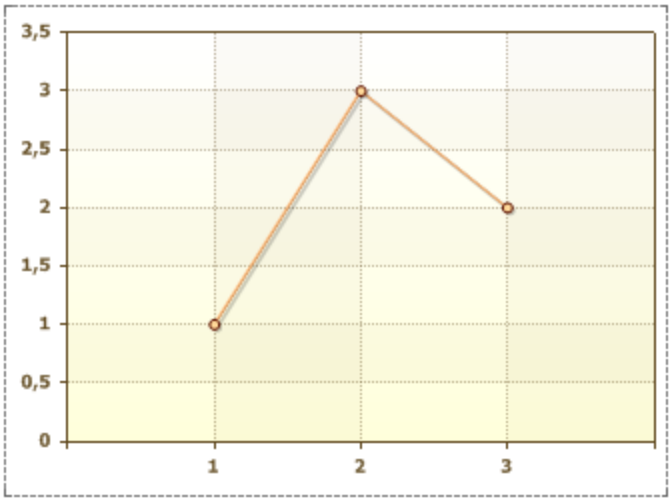
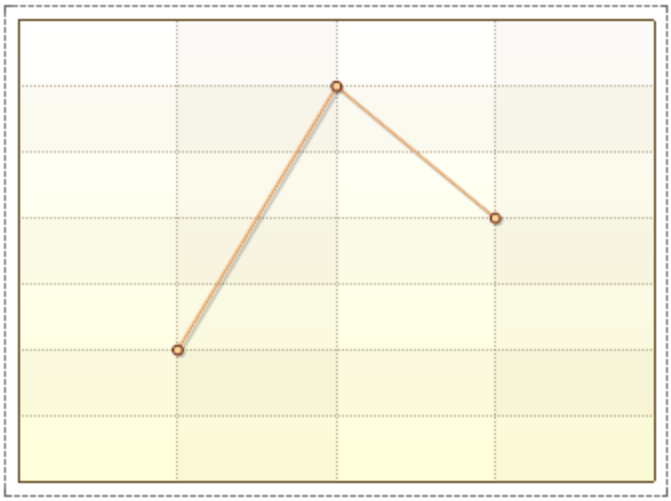
property set to **true** (axes are visible):




If the **Visible** property is to set the **false**, then X and Y axes will not be shown. The picture below shows this:



The **Visible** property has the X axis and the Y axis. It is possible to hide/show axes separately. Also, this property is used to display the top X axis and right Y axis. By default, for the axes, the property is set to **false**. The picture below shows an example of a chart, to display the top X axis and the right Y axis:

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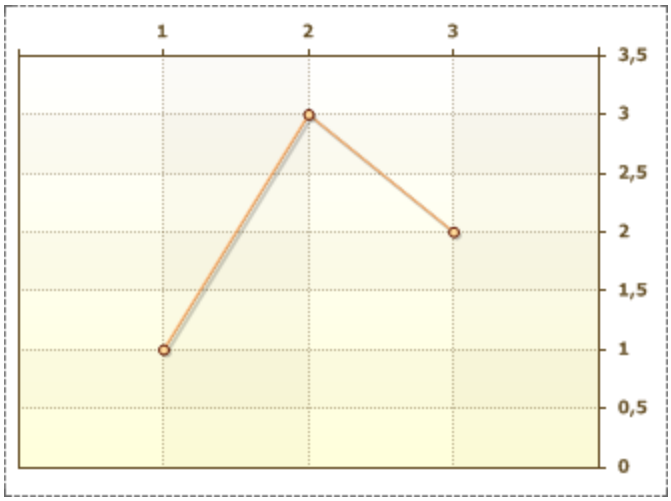
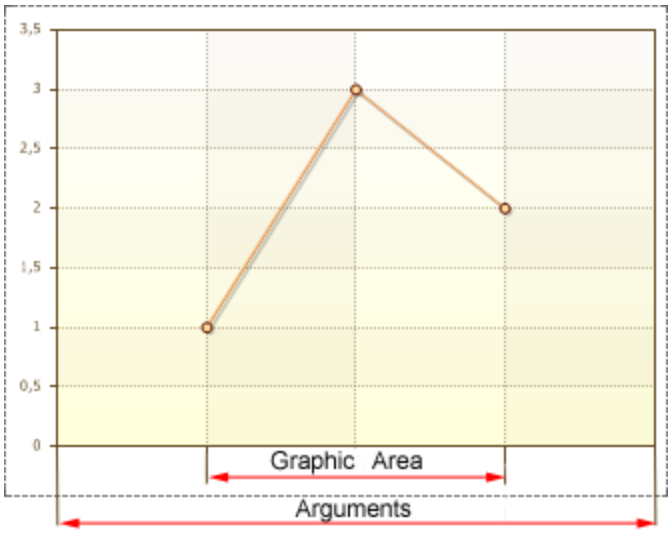



The **Visible** property has the top X axis and the right Y axis. It is possible a combination, for example, the top X axis and the left Y axis or the X axis and right Y axis or any other combinations.
By default the **Visible** property is set to **true**.

#### 5.27.4.1.5 StartFromZero Property

By default, the **Start from Zero** property is set to **true**. I.e. arguments are shown from the start to the end, regardless of the location of the chart. The picture below shows an example of a chart with the **Start from Zero** property set to **true** for the X and Y axes:




If the **Start from Zero** property to set **false**, then the Range of the chart area will be shown. The picture below shows an example of a chart with the **Start from Zero** property set to **false** for the X axis:

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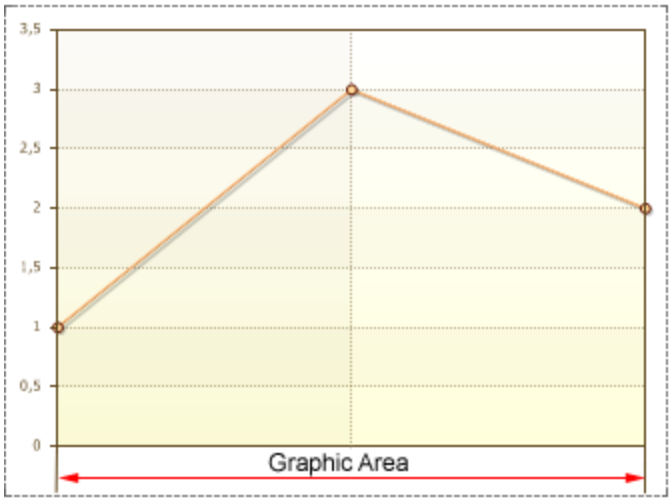
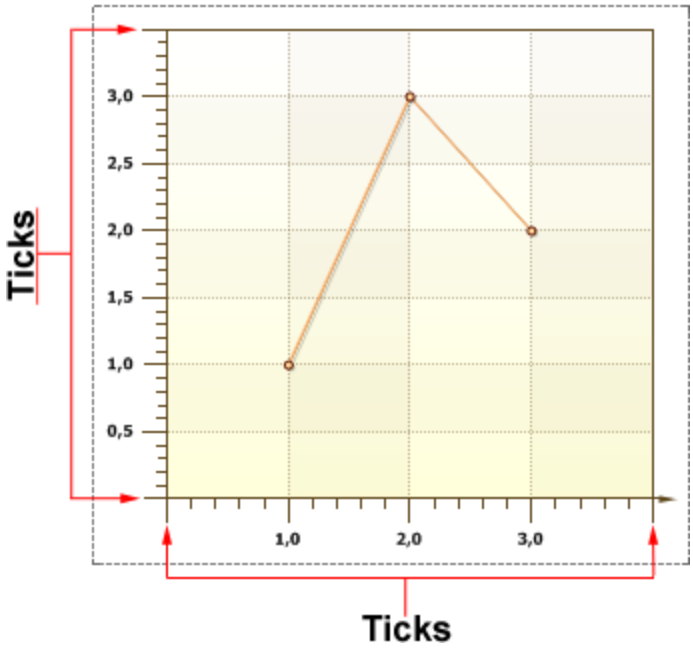



5.27.4.1.6 Ticks

**Ticks** are horizontal (for the Y axis) and vertical (for the X axis) lines, which visually show the unit interval and the proportion of segments. Under the **Ticks** labels are displayed. The picture below shows a chart with ticks:




Ticks have the following properties:

- **Length** is the length of ticks, under which Labels are placed;
- **Minor Count** allows changing the number of intermediate lines (Minor ticks);
- **Minor Length** is the length of the intermediate lines (Minor ticks);
- **Minor Visible** is used to show/hide the intermediate lines (Minor ticks);
- **Step** controls the step of the unit interval, i.e. distance between ticks;
- **Visible** is used to show/hide **Ticks**, both basic and intermediate.

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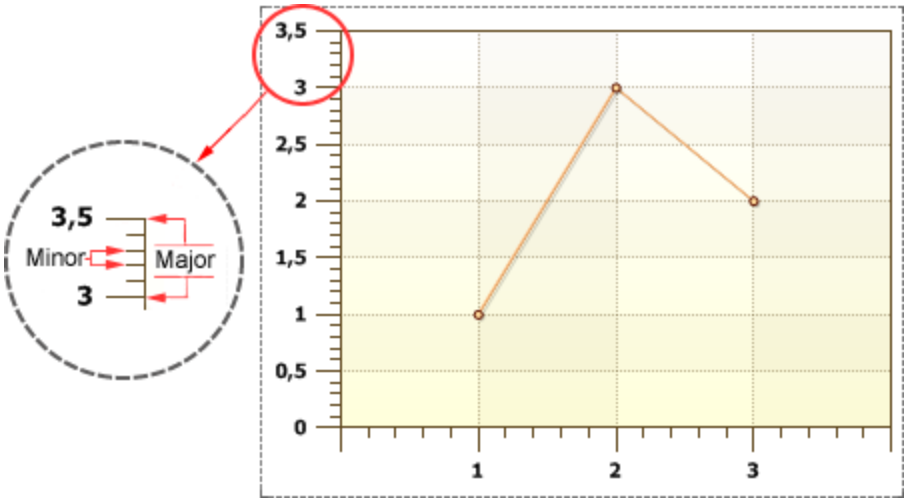
5.27.4.1.6.1 Minor

**Minor ticks** show the proportion of a single axis segment. **Minors ticks** have the following properties: **MinorCount**, **MinorLength**, **MinorVisible**.

**Minor Count** is used to change the number of Minor ticks. The value of this property can be any positive number or 0. The distance between two nearest Major ticks is divided into the number of Minor ticks into equal parts. The picture below shows an example of a chart, with the **Minor Count** property set to 4 for X and Y axes:




**Minor Length** is used to change the length of Minor ticks. The value of this property can be any positive number greater than 0, the field of this property can not be left blank. The length of Minor ticks can be longer than the length of Minor ticks.

**Minor Visible** is used to show/hide Minor ticks on axes. If the **Minor Visible** property is set to **false** , then the Minor ticks are hidden. If the value of this property is set to **true**, then the Minor ticks are shown. The picture below shows an example of a chart, with the **Minor Visible** property set to **true** for X axis, and set to **false** for Y axis:

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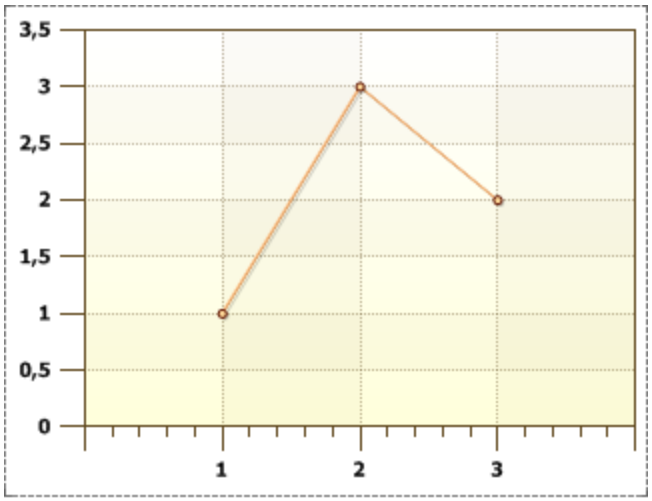
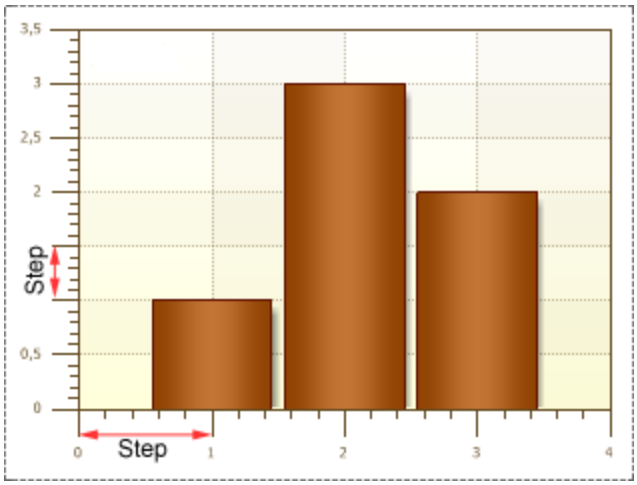



By default, the **Minor Visible** property is set to **false**.

5.27.4.1.6.2 Step Property

The **Step** property is used to change the step between Ticks, i.e. the distance between neighbor Major ticks. By default, the value of the **Step** property is set to 0. The picture below shows an example of a chart with the Step is installed to the 0 default value.




As one can see, if the value is 0, then the distance between two between neighbor Major ticks by the Y axis is **0.5**, and **1** by the X-axis. If to set the Step property to **Z** value, then the report generator will multiply **Z** value by the value of the unit interval. The result obtained is the distance between two neighbor Major ticks. The picture below shows an example of a chart, with the step on the Y axis set to **1,5**, and the X axis value set to **1**:

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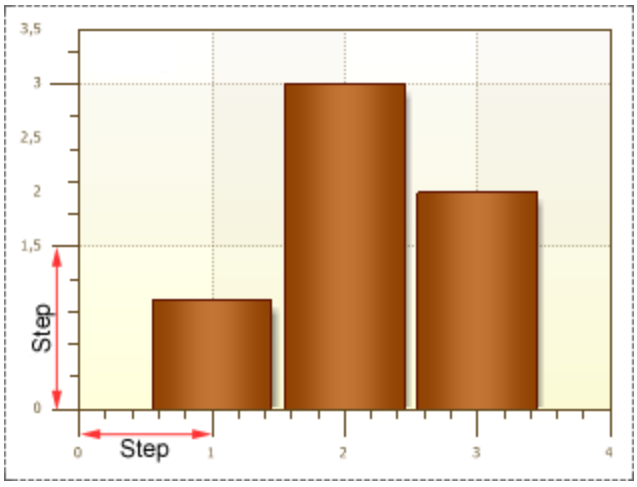
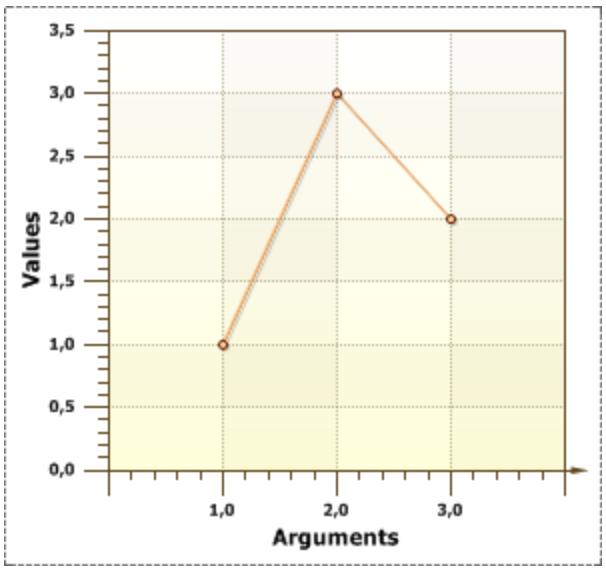



5.27.4.1.7 Title Property

The **Title** property is a title of axis. This property is used to display an axis title. Moreover, the **Title** property for each axis is given separately. The picture below shows a chart where the **X** axis is called the "**Arguments**", and the axis **Y** is called "**Values**":




Also, the **Title** property has the following properties:

- ✓ **Alignment** is used to align the **Title**. It has the following values **Center** (align center), **Far** (align from the beginning of an axis), **Near** (align to the beginning of an axis);
- ✓ **Antialiasing** is used to produce smooth-edged **Titles**;
- ✓ **Color** is used to change a title text of an axis;
- ✓ **Font** is used to change the size, font style of a title text of an axis;
- ✓ **Text** is a field to type a title text of an axis. If the field is empty then the title of an axis is not displayed.

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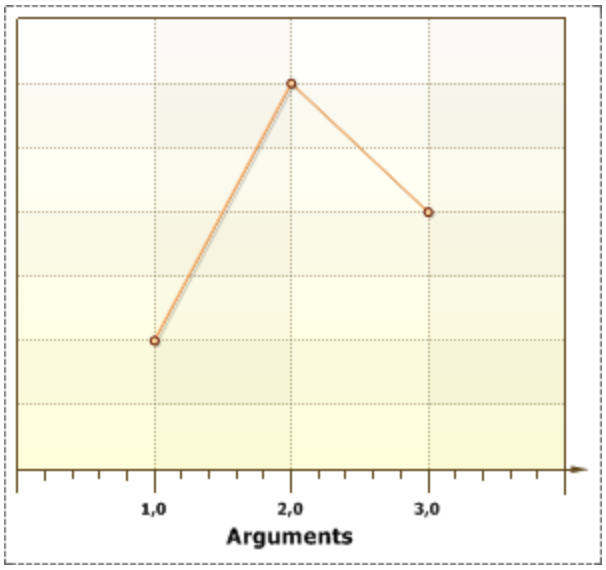
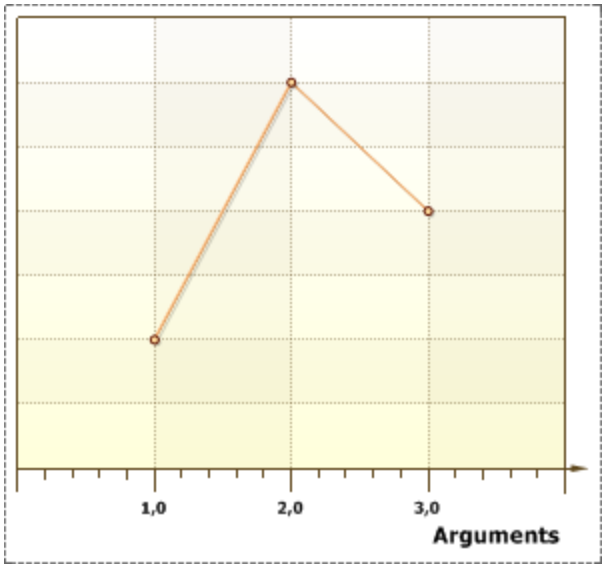
5.27.4.1.7.1 Alignment Property

The **Alignment** property is used to align a title of an axis. The full path to this property is **Area.Axes.Title.Alignment**. This property has the following values: **Center**, **Far**, **Near**.

**Center**. Aligns the title of the axis by center by the axis. The picture below shows an example of a chart, with the **Alignment** property of a title of the X axis set to **Center**:




**Far**. Aligns the title of the axis on the opposite side from origin of coordinates. The picture below shows an example of a chart, with the **Alignment** property of a title of the X axis set to **Far**:




**Near**. Aligns the title of the axis on the near the origin of coordinates. The picture below shows an

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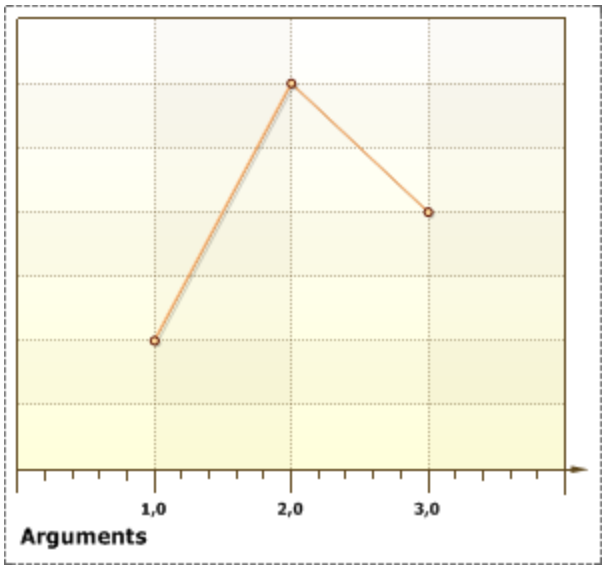
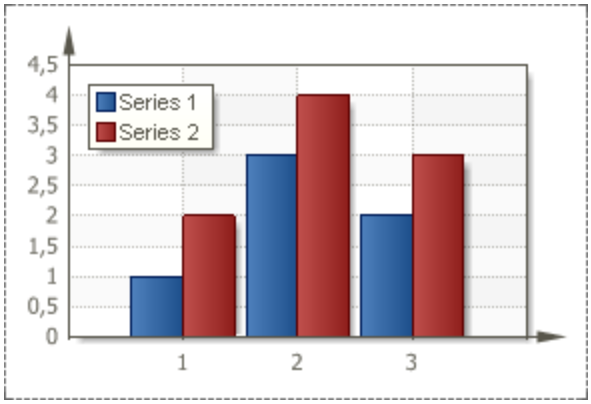
example of a chart, with the **Alignment** property of a title of the X axis set to **Near**:




By default, the **Alignment** property of series is set to **Center**.

### 5.27.4.2 ReverseVertical Property

The **Reverse Vertical** property is used to flip a chart vertically. The picture below shows an example of a chart, with the **Reverse Vertical** property set to **false** (As one can see, the values of the x-axis have normal direction.):




If the **Reverse Vertical** property is set to **true**, then the chart will appear in the opposite direction vertically. The picture below shows an example of a chart, with the **Reverse Vertical** property is set to **true** (As one can see, the values of the x-axis have downright direction.):

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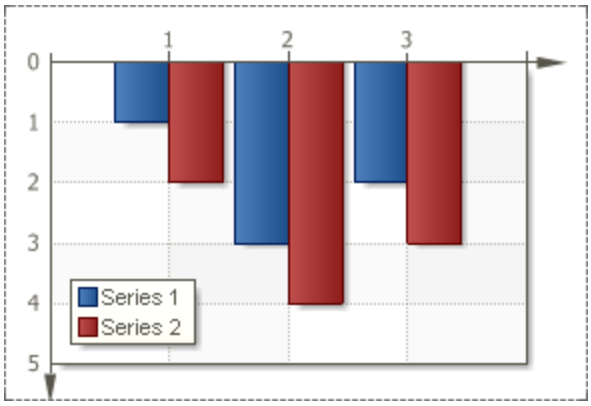
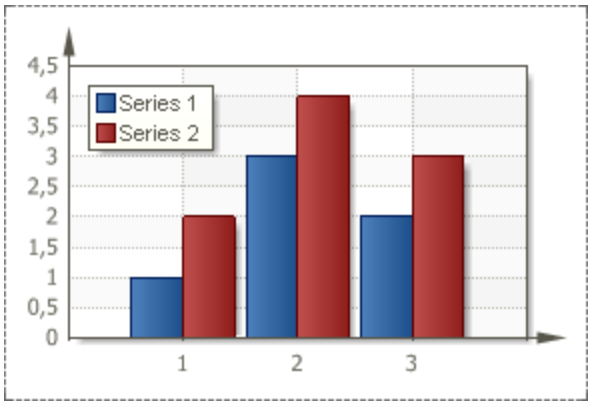



By default, the **Reverse Vertical** property is set to **false**.

### 5.27.4.3 ReverseHorizontal Property

The **Reverse Horizontal** property is used to flip a chart horizontally. The picture below shows an example of a chart, with the Reverse Horizontal property set to false (As one can see, the values of the x-axis have left to right direction.):




If the **Reverse Horizontal** property is set to **true**, then the chart will appear in the opposite direction horizontally. The picture below shows an example of a chart, with the Reverse Horizontal property is set to true (As one can see, the values of the x-axis have right to left direction.):

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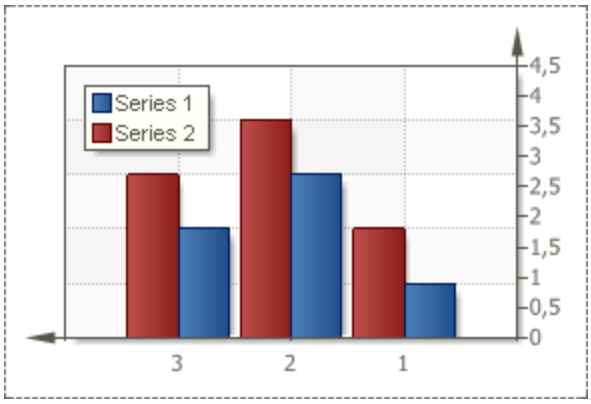
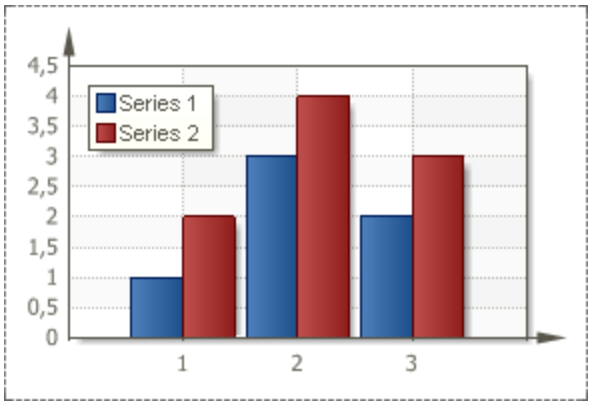



By default, the **Reverse Horizontal** property is set to **false**.

#### 5.27.4.4 ColorEach Property

The **Color Each** property is used (depends on the selected style) to set color for each value of a series. By default, the **Color Each** property is set to **false**, i.e. columns of one row have the same color. The picture below shows an example of a chart with the **Color Each** property set to **false** for two series:




If the **Color Each** property is set to true, then each value of X axis has its own color. The picture below shows an example of a chart with the **Color Each** property set to **true** for two series:

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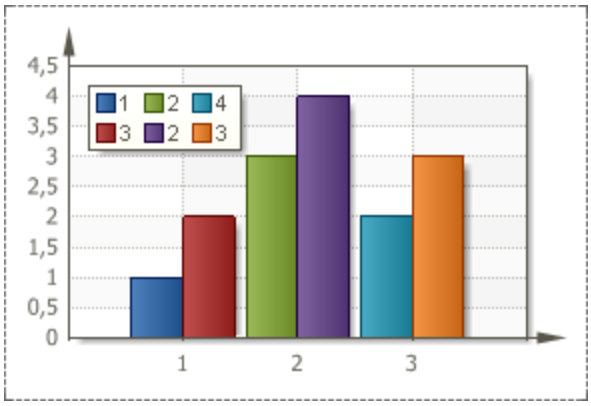


## 5.27.5 Series

**Series** type depends on the chart type. They are divided into series, placed on doughnut charts, and placed in the axis area.

### 5.27.5.1 Data Connection

One of the main settings of the series is specifying the way of obtaining data. There are three ways to obtain data for the series:

- To set the column data from the dictionary;
- To specify an expression;
- Manually specify values for the series as a list, through the '**;**' separator.

#### 5.27.5.1.1 Data Column

The **Value Data Column** and **Argument Data Column** properties are used to connect a series by specifying a data column from the dictionary. The reporting tool renders series of charts by values and arguments of the column selected in the fields of the **Value Data Column** and **Argument Data Column** properties. For example, if the selected column of data from the data source contains the 1000 values, then all the 1000 values will be used in constructing the chart. The picture below shows an example of the chart, so the values from the selected data source column:

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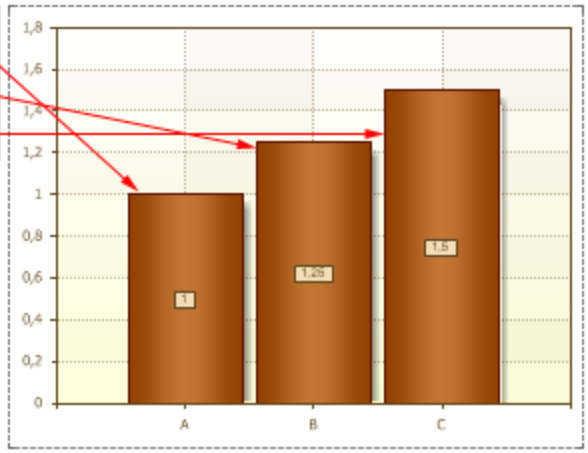
| Value | Argument |
|---|---|
| 1 | A |
| 1.25 | B |
| 1.5 | C |




5.27.5.1.2 Expressions

To connect a series of data using the expression, you should use the **Value** and **Argument** properties. The values of these properties are expressions, the result of their calculation is used to obtain a single value of data and argument of data. If you use the Value and Argument properties, then, for this chart, it is necessary to select a data source (the Data Source property), because expressions specified in the fields of these properties are not lists of data and return only one value when calculating. Moreover, the **Value** property returns the value in Number format, but the **Argument** property allows any type of data. To make the report generator know which list should be used for the report, it is necessary to indicate the data source. Once the data source is specified, the report generator runs through all the records of the data source and calculates all the values and arguments according to expressions given in the fields of the **Value** and **Argument** properties. The result of the calculation is used to create a chart. Also, for the data in the data source, you can specify sorting and filtering. The picture below shows an example of a chart, rendered on the basis of results of values and arguments calculations of the selected column of the data source:

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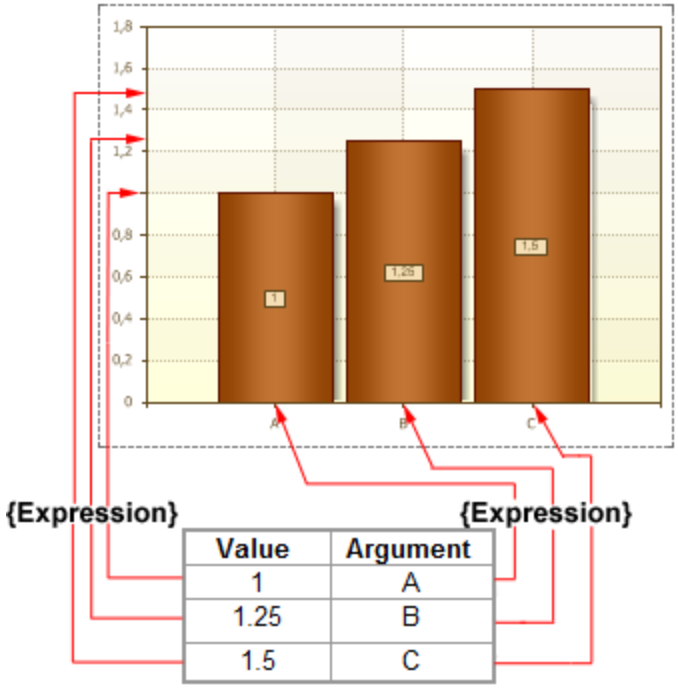
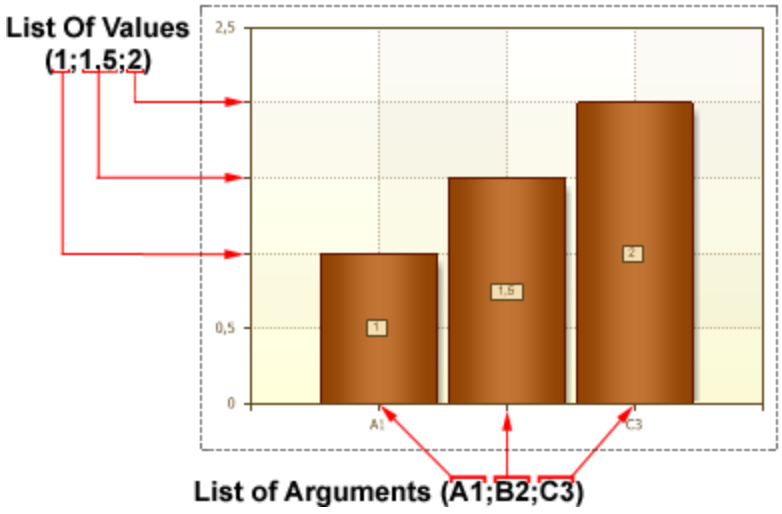



5.27.5.1.3 List of Values Property

If it is necessary to build a chart by the given values and arguments, then one should use the **List of Values** and the **List of Arguments** properties. The **List of Values** indicates values for creating series (values must be entered through the **';'** separator). The **List of Arguments** property indicates arguments for creating series (values must be entered through the **';'** separator). The order number of the **List of Values** property values corresponds to order number of the **List of Arguments** property values. The picture below shows an example a chart, designed by the list of values and arguments:

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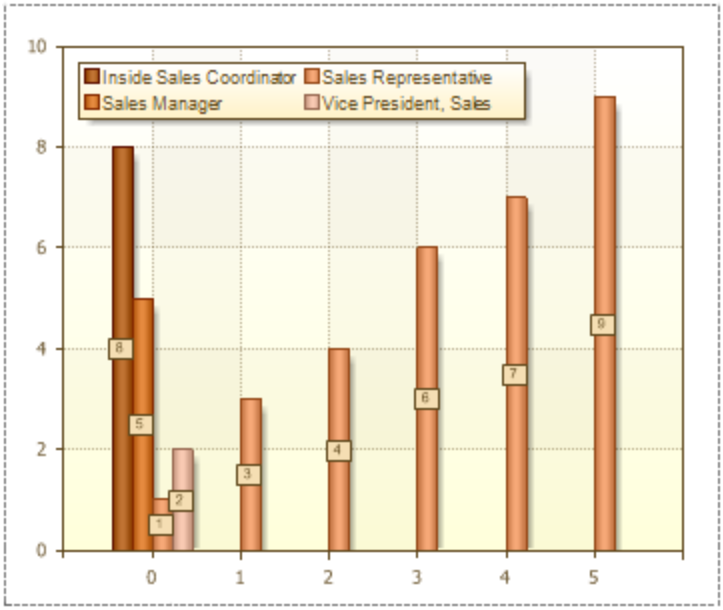
### 5.27.5.2 AutoSeries

Stimulsoft Reports can automatically create a series. Use the **Auto Series Key Data Column**, **Auto Series Color Data Column**, and **Auto Series Title Data Column** properties. A column from which values are taken to build the series is selected in the **Auto Series Key Data Column** property. A series is created for each unique value. The picture below shows an example of a chart with the **Auto Series Key Data Column** property set to **Employees.Title**:




There are 4 rows on the picture above. The 1st, 2nd, 4th series have one value, and the 3rd series has 6 values. This means that the **Employees** data source in the **Title** column contains **9** lines, and 6 lines have identical values (records), and the remaining three are different. Values (records) of rows in the data source are shown in a rendered chart in the legend, as well as the name of the series, if the field of the **Auto Series Title Data Column** property is empty. The **Auto Series Color Data Column** property is used to specify the color range, i.e. each series will have its own color. This property is subsidiary, and is not required to fill in the automatic creation of the series. Also, the subsidiary property and the **Auto Series Title Data Column** property, using what it is possible to change the title of the series. The picture below shows an example of a chart, with the **Auto Series Key Data Column** property set to **Employees.Title**, and the **Auto Series Title Data Column** property set to **Employees. EmployeeID**:

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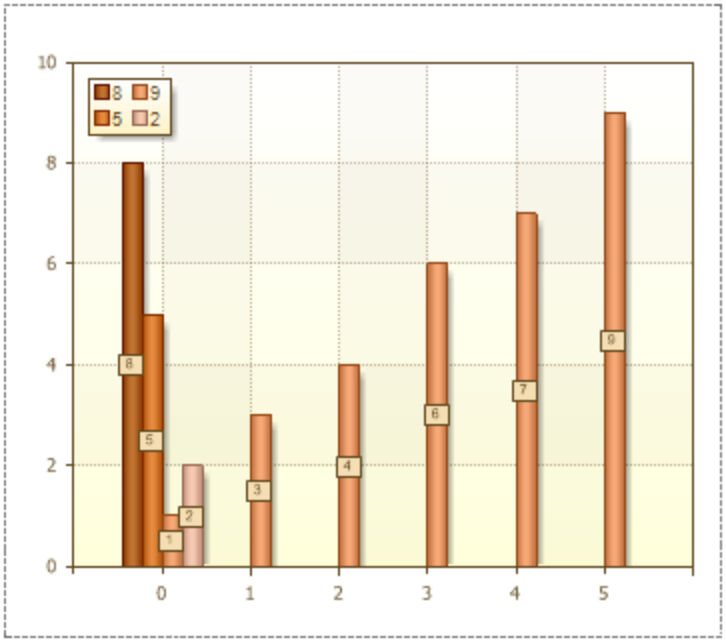
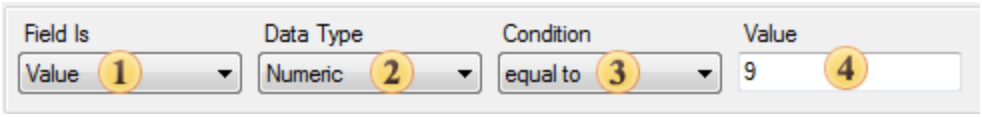



As seen from the picture above, the series labels are changed. As the series labels, string values are taken from the columns of the data source that is listed in the **Auto Series Title Data Column** property, in this case, this is the **EmployeeID** column.

### 5.27.5.3 Filters

Sometimes, in creating reports, it is necessary to print, not all values from the data source, but only those that meet specific criteria. In order to select the required settings, data filtering is used. Filtering is set using the **Filters** property in the **Series Editor**. A condition is specified is each filter. If the condition is **true**, i.e. the result of its calculation is **true**. This means that this value will be used when chart rendering. If the result of calculation of the filter condition is **false**, then this value will be ignored. Each filter represents a condition for processing the data values. The picture below shows an example the filter panel:




1 The method of choosing the conditions by what filtering (Value or Argument) is done.
2 This field specifies the type of data with what condition will be working. Five types of data are available: **String**, **Numeric**, **DateTime**, **Boolean**, **Expression**. The data type affects how the report generator processes the condition. For example, if the data type is a string, then the method of work with strings is used. In addition, depending on the type of data the list of available condition operations is changed. For example, only for the **String** data type the **Containing** operation is available. The **Expression** data type is used to set the expression instead of the second value.
3 The type of operation with what it is possible to calculate a value of a condition. All available types of operations are available in the table below.
4 Values of the filter condition.

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A list of available operations depends on the type of data. Below is a table of operations for each type of data with their descriptions.

| Operation | Types of data | | | | Description |
|---|---|---|---|---|---|
| | String | Numerical | DateTime | Boolean | |
| **equal to** | ✓ | ✓ | ✓ | ✓ | If the first value is equal to the second, then the condition is true. |
| **not equal to** | ✓ | ✓ | ✓ | ✓ | If the first value is not equal to the second, then the condition is true. |
| **between** | | ✓ | ✓ | | If the first value is in the range, then the condition is true. |
| **not between** | | ✓ | ✓ | | If the first value is not in the range, then the condition is true. |
| **greater than** | | ✓ | ✓ | | If the first value is greater then the second value, then the condition is true. |
| **greater than or equal to** | | ✓ | ✓ | | If the first value is greater then the second value of equal to the second value, then the condition is true. |
| **less than** | | ✓ | ✓ | | If the first value is less then the second value, then the condition is true. |
| **less then or equal to** | | ✓ | ✓ | | If the first value is less then the second value or equal to the second value, then the condition is true. |

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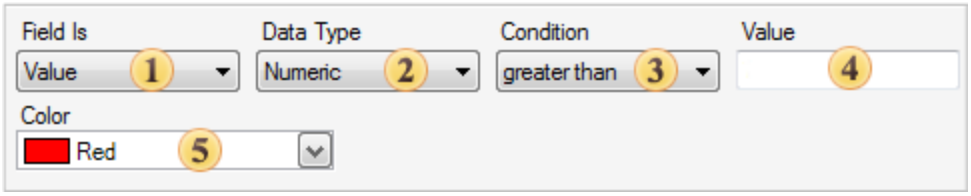
| | | | | | |
|---|---|---|---|---|---|
| **containing** | ✓ | | | | If the first value contains the second value, then the condition is true. This operation is used only for strings. |
| **not containing** | ✓ | | | | If the first value does not contain the second value, then the condition is true. This operation is used only for strings. |
| **beginning with** | ✓ | | | | If the first value starts with the second value, then the condition is true. This operation is used only for strings. |
| **ending with** | ✓ | | | | If the first value ends with the second value, then the condition is true. This operation is used only for strings. |

### 5.27.5.4 Conditions

If it is necessary to set the color of values in a chart, one can specify the condition. The **Conditions** property in the **Series Editor** is used to set up conditional formatting. The editor of conditions is called using this property. The picture below shows the main elements of the editor of conditions:




**1 Field Is**
This is used to select the type of conditions.
**2 Data Type**
This field specifies the type of data with what a condition will work. There are five types of data: **String**, **Numeric**, **DateTime**, **Boolean**, **Expression**. Data type affects on how the reporting tool processes a condition. For example, if the data type is a string, then the methods of work with strings are used. In addition, depending on the type of data the list of available operations of conditions is changed. For example, only for the **String** data type the **Containing** operation is available**.** The **Expression** data type provides the ability to specify an expression instead of the second value. In this case the reporting tool will not check the compatibility of the first and the second values of the condition. Therefore, the user should care about the correctness of the expression.
**3 Condition**
A type of operation using what the calculation of values will be done.

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**4 Value**
The first value of a condition.
**5 Color**
Select a color to mark values which corresponds to condition.

### 5.27.5.5 Series Editor

Setting the series includes a number of properties in the **Series Editor**, which is used to visually arrange the rows and change the advanced settings.

The **Border Color** property is used to change the border color of each series of a chart, i.e. each border of series has its own color.

The **Brush** property is used to change the type of filling and series color.

Depending on the value of the **Show Shadow** property, the shadow for series may be shown/ hidden. If the **Show Shadow** property is set to **true**, then shadows are shown. If the **Show Shadow** property is set to **false**, then shadows are not shown.

The **Show Zeros** property can take two values, depending on what zero values in a chart will be shown/hidden. If the **Show Zeros** property is set to **true**, then zero values are displayed on a chart. If the **Show Zeros** property is set to **false**, then zero values will not be displayed on a chart.

Using the **Width** property it is possible to change the width of the created values. A value of this property will change a value from 0 (a value greater than 0) to 1 (a value must be less than or equal to 1). The lowest value corresponds to the minimum width and maximum value corresponds to the maximum width.

The **Axis Y** property affects the location of the Y axis. If the **Axis Y** property is set to **Left Y Axis**, then the Y axis will be located on the left. If the **Axis Y** property is set to **Right Y Axis**, then the Y axis will be located on the right.

Using the **Show in Legend** property will change the display mode in a legend. If the **Show in Legend** property is set to **true**, then series are shown in a legend. If the **Show in Legend** property is set to **false**, then series are not shown in a legend.

The **Show Series Labels** property can take three values, according to which titles series will be shown/hidden. If the **Show Series Labels** property is set to **None**, then series labels not displayed. If the **Show Series Labels** property is set to **fromCharts**, then series labels are displayed according to parameters set in the **Series Labels** property of a chart. If the **Show Series Labels** property is set to **fromSeries**, then in the **Series Editor** the **Series Labels** property will appear. This property can be configured by setting the parameters, and Series Labels in a chart will be displayed in accordance with these parameters.

With help of the **Title** property it is possible to change the series labels. Any characters entered in the field of this property will be labels.

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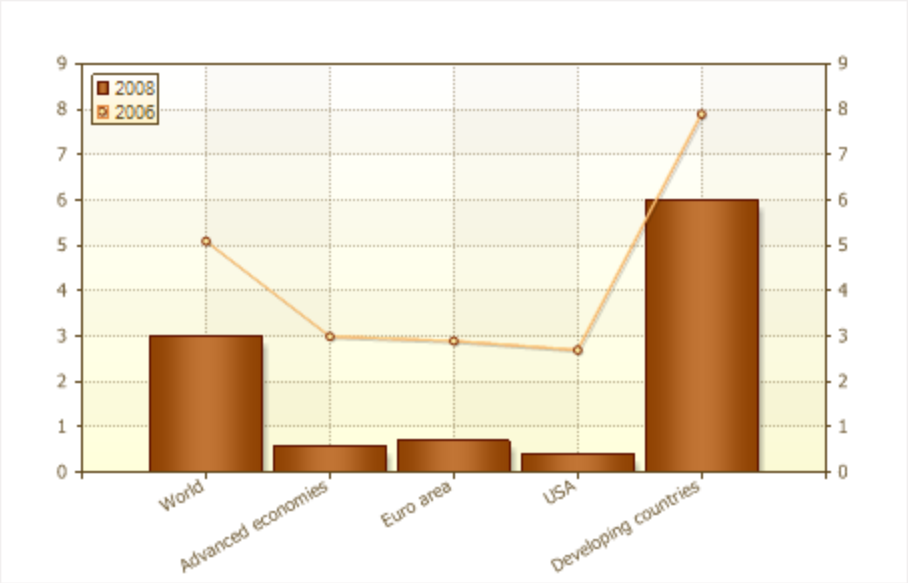
### 5.27.5.6 Axis Y

For each row, you can choose left or right axis Y, which is about the plot. Attachment to the axis of the graph depends on the properties of a number of axis Y (Axis Y), depending on the value of this property and are binding. If this property is set to Left axis Y (Left Y Axis), it will bind to the left axis, and if the property is set to the right axis Y (Right Y Axis) - to the right. Typically, this feature is used when you want to display a chart of different types of series. Let us consider in more detail with an example. We construct a diagram that will contain data on global economic growth for 2006 and 2008. Data for the 2008th displayed as a histogram, and in 2006 as a line. Chart datum, in this case, leave the default, ie to the left axis Y. The figure below shows a diagram constructed:




As can be seen from the picture, in general, global economic growth by region for 2006 was higher than in 2008. In this case, the report generator will generate the left Y-axis by choosing the maximum value of the columns of data in those rows that are tied to it, ie, from the column data in bar charts and line. And then, build graphs for the axis Y. If the right Y-axis is enabled, the value of this axis will be duplicated on the left axis Y. Now change the example slightly, we establish a number of anchor line (Line) to the right Y-axis and construct a graph. The picture below shows a diagram with reference to the right and left axis Y, different series:

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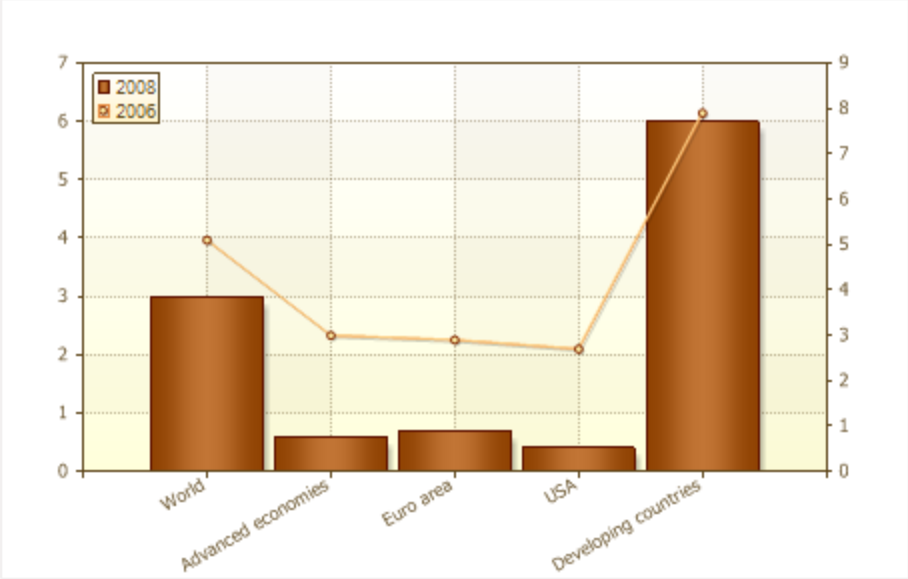
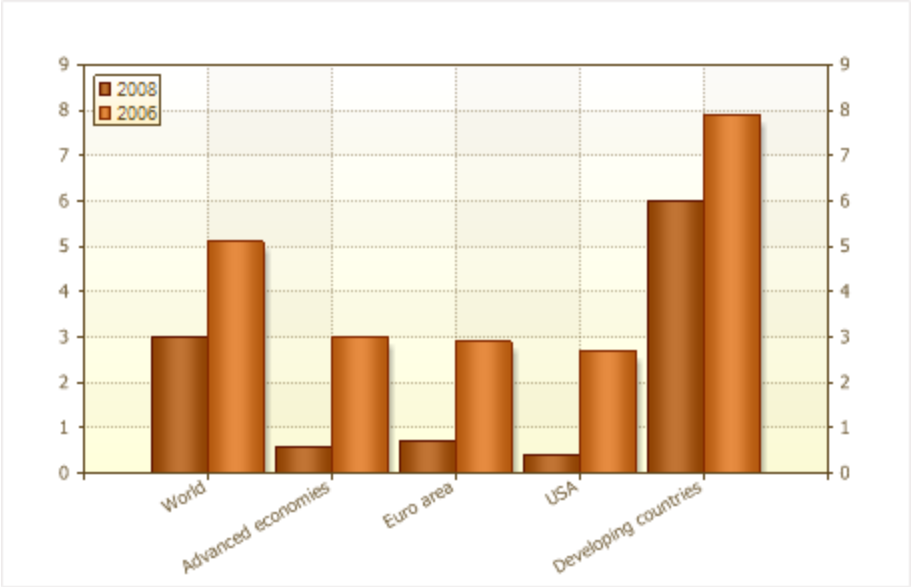



As can be seen from the picture, the value and dynamics of global economic growth have not changed. But the values of the left and right Y-axis are not identical. In this case, a report generator built on the left Y-axis maximum value from a column of data series that is tied to the left axis, ie by the maximum value from the histogram and the right axis Y - by the maximum value at the line. It is also worth noting that you can specify a different axis, and for the series of the same type. The picture below shows two diagrams (on the left - both series are tied to the left axis Y, on the right - first row to the left axis, the second - to the right):

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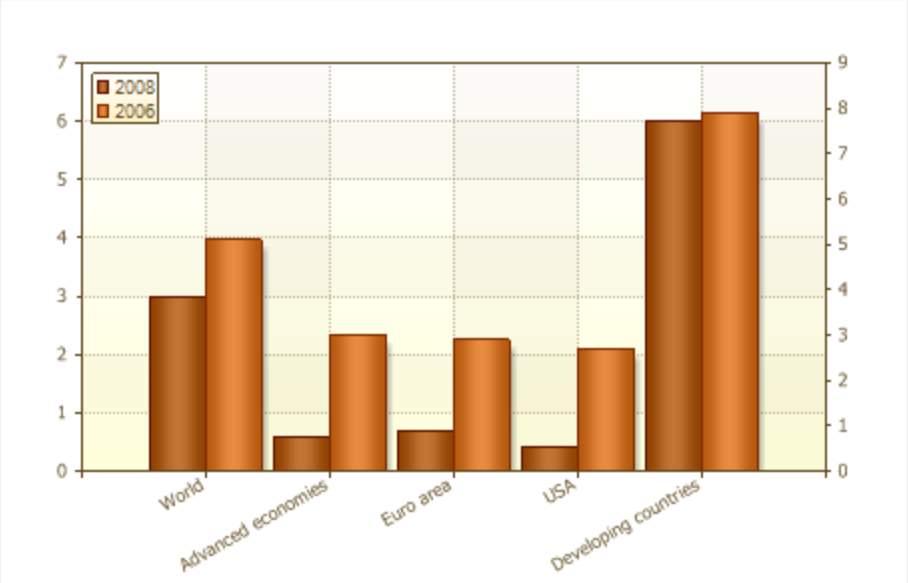


As can be seen on the diagram, where the binding is to a single axis, it is better visible the dynamics of growth (or loss), but at the same time, if the values of one series would be great, and the second is considerably small, should be used to bind to different axes. This will enable even the smallest value to visualize. Also, it should be understood that the rows of stacked rows of binding to different axes Y is incorrect, because This contradicts the method of charting the accumulation.

### 5.27.5.7 Top N

Using the group of properties Top N you may highlight the maximum or minimum values in the chart, and the rest one group into a single value. Grouped value is a sum of all values that were not identified. Features offered by the group of properties Top N, can be applied in different cases: when the chart has many values but it is needed to allocate a certain amount of the maximum (minimum) ones or, for example, if you want the chart to display the difference between the maximum (minimum) values and set other values. Let's consider the properties of Top N in more detail.

1. The **Count** property provides the ability to determine the number of values that will be displayed and will not be subject of grouping. If this property is set to 2, then it means that the two maximum (minimum) values will be displayed, and the rest are grouped into a single value.
2. Depending on the value of **Mode** property will be allocated the maximum or minimum values. If the **Mode** property mode is set to **Top**, the maximum values will be highlighted, and if the property is set to Bottom - the minimum ones will be selected. If the **Mode** property is set to **None**, then all the values in the fields of the properties **List of Value**, or **Value Data Column** will be displayed.
3. Specify the signature of the argument values grouped, you can use the properties of the Other Text. If the field is empty for this property, the signature of the argument have grouped the values will be absent.
4. Displaying or not hiding the grouped property value provides an opportunity to Show Other. If this property is set to true (true), then this value is shown in the diagram, and if the value lies in the (false) - a group the values are not displayed.

Consider the possibilities offered by a group of Top N properties as an example. There is a report that

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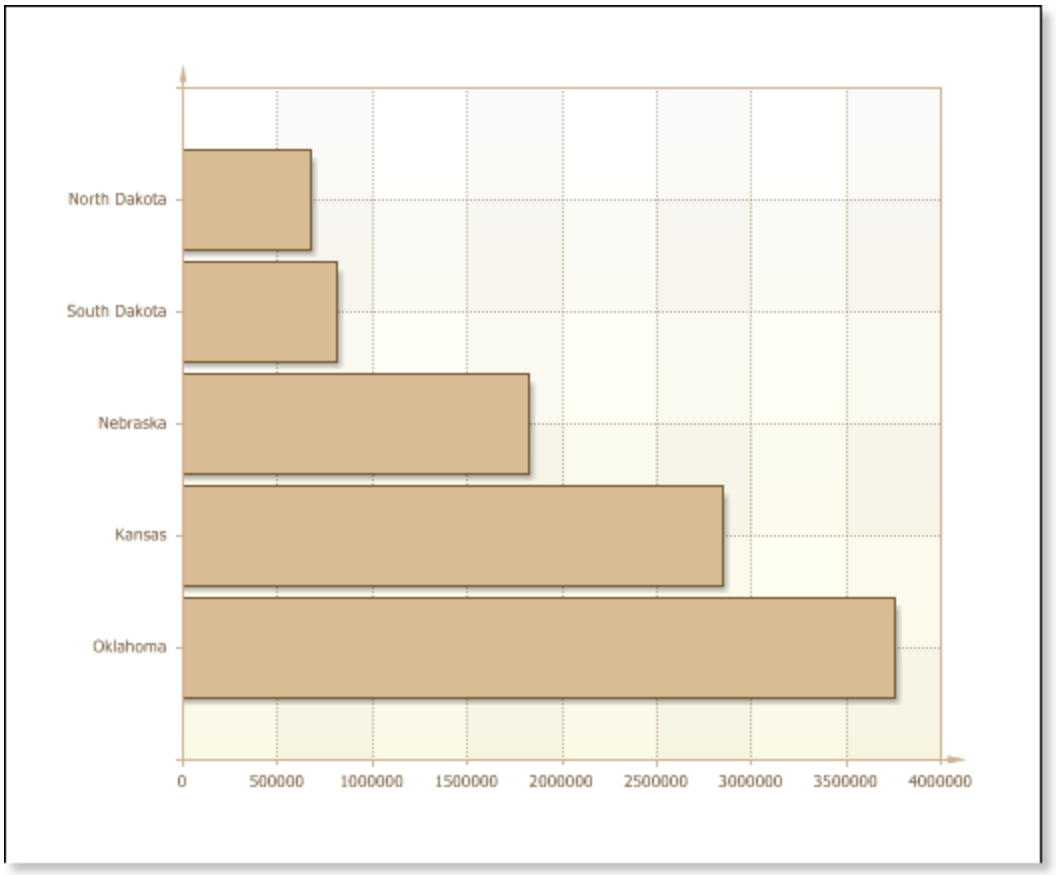
plotted on the population in some states of America. The picture below shows this diagram:




As you can see from the picture, the population of Oklahoma is the largest in the diagram. For example, to visually display the differences in the population of Oklahoma and the total population of other states in this diagram. Define the property values of Top N. Since it is necessary to allocate a single maximum value (population of Oklahoma), the number of property (Count) should be set to 1, and the **Mode** property - is set to Top. If you want you can add a signature argument of the aggregate value. In this example, the property Other Text define to be the Other. Show Other property also must be set to true (true), as in this example, the goal is to visually display the differences between populations in Oklahoma and other states in this diagram. The picture below shows a diagram with the properties of the applied group Top N:

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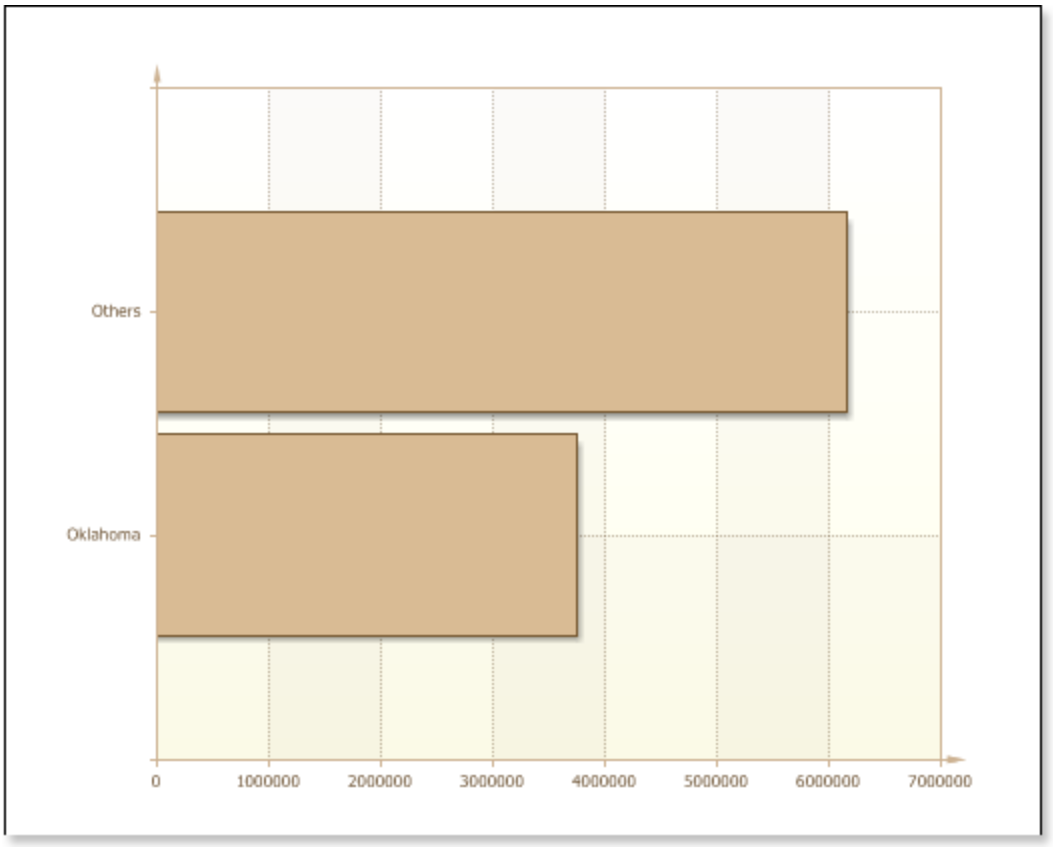


As can be seen from the picture, the other values were grouped into a single value with the signature of an argument Other. Out of the diagram shows that the total population exceeds the population of the four states of Oklahoma. Consider another example. There is a chart with a set of values, in this case the products and their prices. The picture below shows a diagram:

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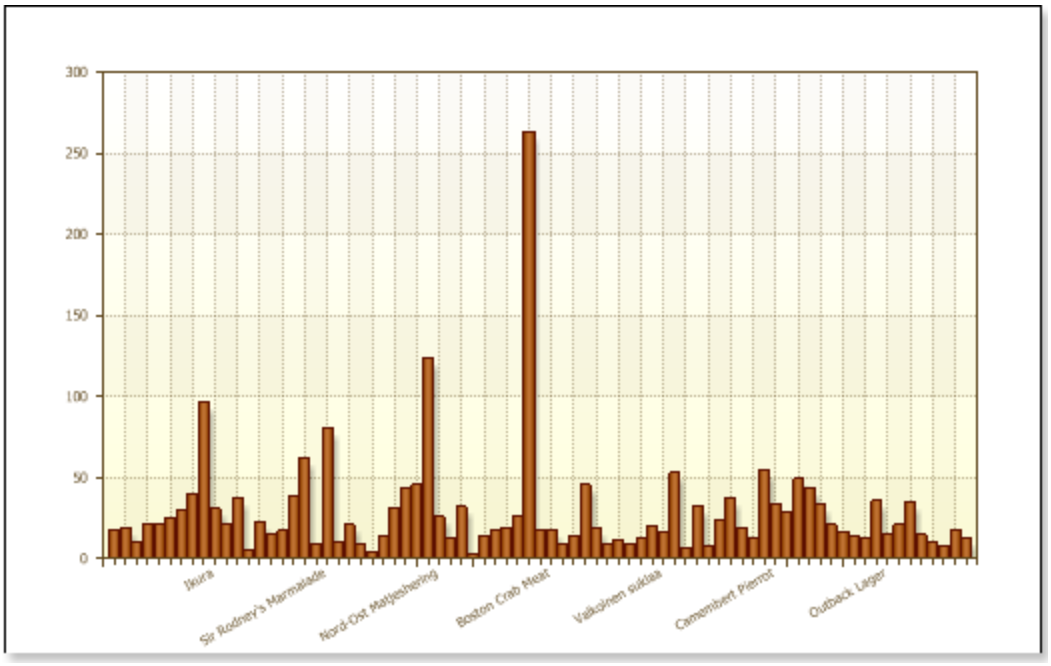
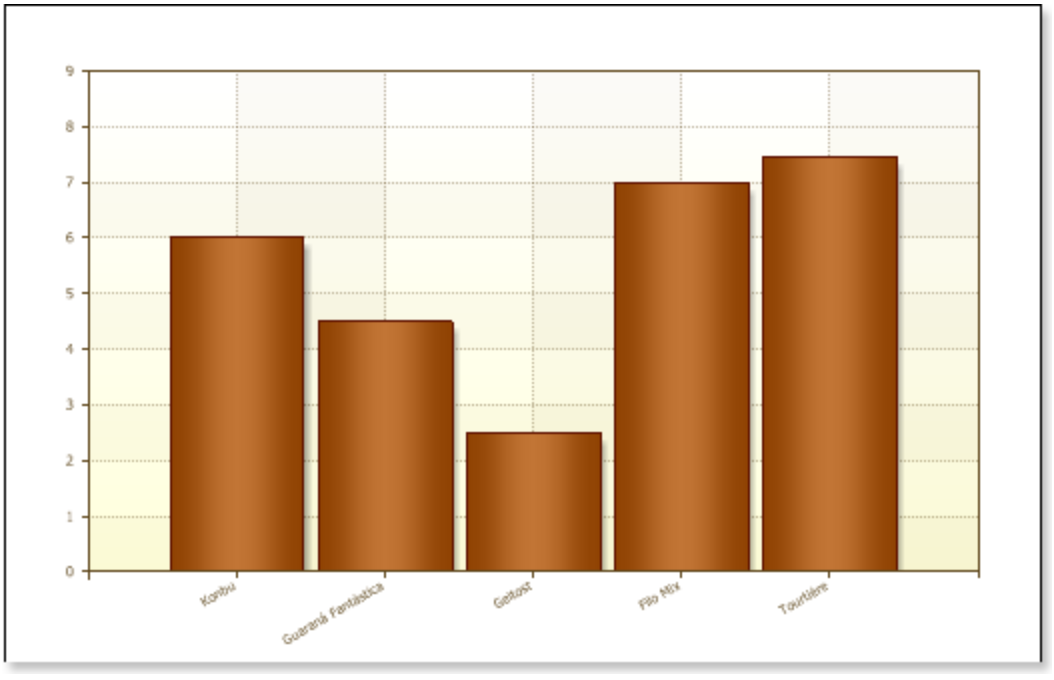



As the picture shows, visually, this picture is seen with difficulty, and select the maximum (minimum) value is problematic. In this example, we select 5 products to the most minimal prices. To do this, set the **Count** property in the value 5, the **Mode** property - is set to Bottom, Other Text property field is left blank, because the property is set to Show Other value **false**. The picture below shows a diagram with the properties of the applied group Top N:




As can be seen from the picture, a kind of filtering is performed, ie Report Generator has identified five minimum values, and the rest grouped into a single value. Because the property found in the Show

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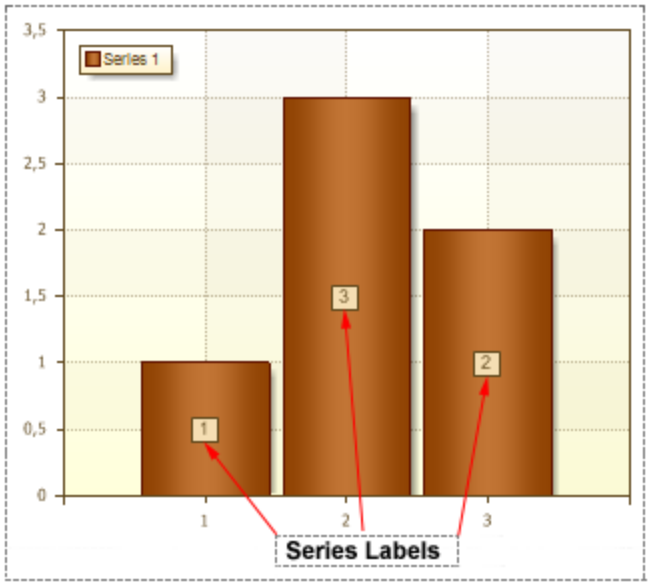
Other value lies (false), then grouped the value does not appear on this chart.

## 5.27.6 Series Labels

**Series Labels** is an information block which displays the value of each series. The picture below shows an example of a chart, with Series Labels:




The **Series Labels** property is used to indicate position of series labels. The list of available options for this property depends on the type of chart. Also, the **Series Labels** property have some options that are used to change settings of Series Labels.

### 5.27.6.1 Series Labels Appearance

The following group of properties allows visually change the appearance of Series Labels: change the background color, titles, borders, font type, antialiasing.

#### 5.27.6.1.1 Brush Property

The **Brush** property is used to fill a background type and color in Series Labels. To change the background color and appearance of a Series Label use the **Brush** property within the Object Inspector.

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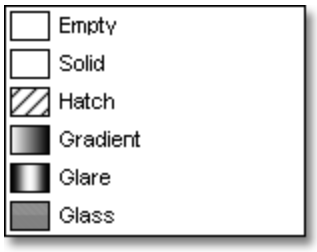
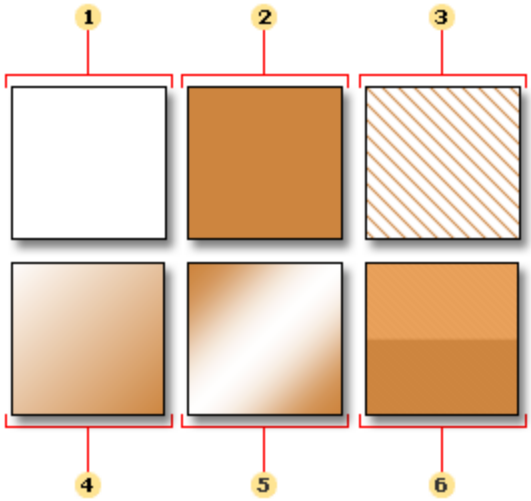



Six types of Brushes are available within Stimulsoft Reports:

- **Empty**
- **Solid**
- **Hatch**
- **Gradient**
- **Glare**
- **Glass**

Below are representations of the results all six Brush types:




1 **Empty.** The background of a Series Label is transparent.
2 **Solid.** The background of a Series Label is filled with the color you specify.
3 **Hatch.** The background of a Series Label is filled with a texture. The background and foreground colors of the selected texture can be specified individually..
4 **Gradient.** The background of a Series Label is filled with gradient. A Start color, an End color, and a Gradient angle can be specified.
5 **Glare.** The background of a Series Label is filled using the Glare effect.
6 **Glass.** The background of a Series Label is filled using the Glass effect.

The **Brush.Color** property is used to change the Series Labels color. The picture below shows a sample of a chart with the Brush property set to **Glare**:

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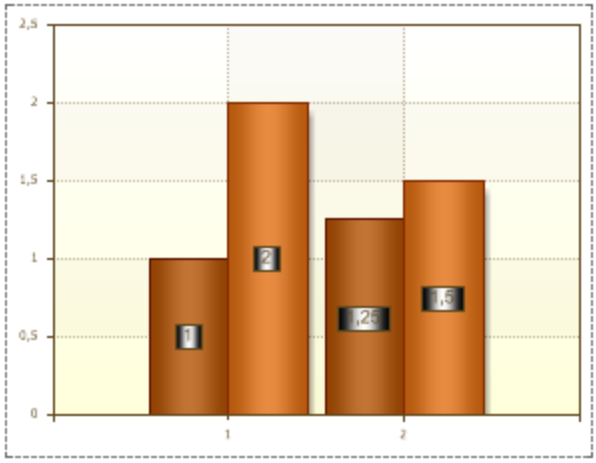


5.27.6.1.2 Font Property

The font for Series Labels can be set using the **Font** property within the Object Inspector.

**Selecting font**

Series Labels within a report can be output using different fonts. Three examples fonts are shown below:

AaBbCcDd

AaBbCcDd

AaBbCcDd

Any font that is installed on your machine can be used in Series Labels. However, when choosing a font try to select one that will also be present on a user machine or a report may not render as you would wish at runtime.

**Font Size**

The font size can be changed using the **Font.Size** property. For example:

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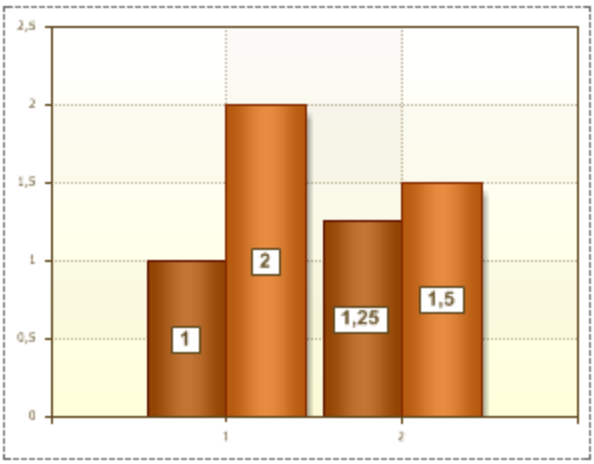
AaBbCcDd
AaBbCcDd
AaBbCcDd
AaBbCcDd
AaBbCcDd

**Font Styles**
Different styles can be applied to the font. A font may include one or more styles such as regular, bold, semibold, italic, underlined, and strikeout. Examples of font styles are shown below:

AaBbCcDd
**AaBbCcDd**
*AaBbCcDd*
AaBbCcDd
~~AaBbCcDd~~

The picture below shows a chart with text set to **Arial, Bold** style**,** font size - **12:**




5.27.6.1.3 LabelColor Property

The **Label Color** property within the Object Inspector is used to change the color of Series Labels. The

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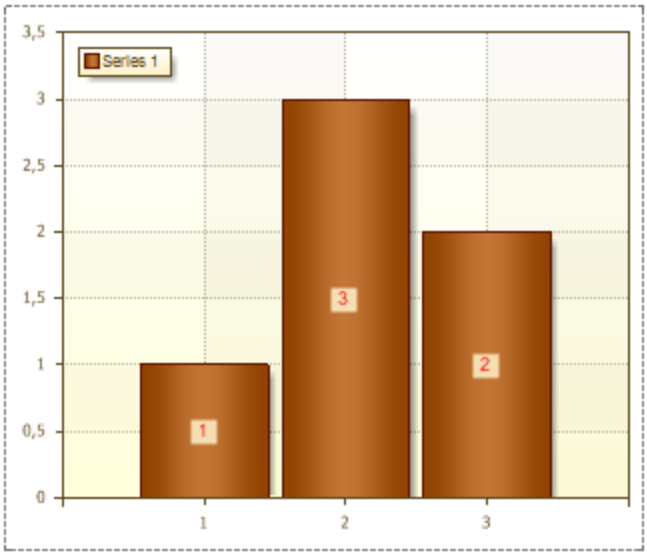
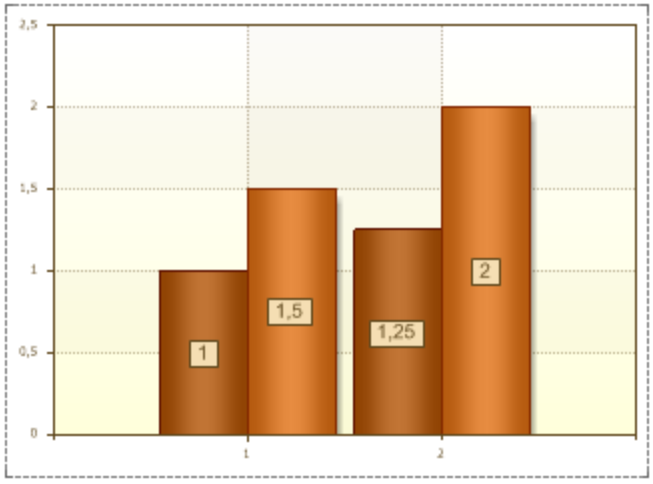
picture below shows a chart with the **Label Color** property set to **red**:




5.27.6.1.4 UseSeriesColor Property

The **Use Series Color** property is used to make the border color and the series label color match to the color of the series. If the **Use Series Color** property is set to **false**, then the border color and the color of series labels will correspond to the selected values of the **Border Color** and **Label Color** properties. The picture below shows an example of a chart, with the **Use Series Color** property set to **false**:




If the **Use Series Color** property is set to **true**, then the border color and series labels color will match to the color of series. The picture below shows an example of a chart, with the **Use Series Color** property set to **true**:

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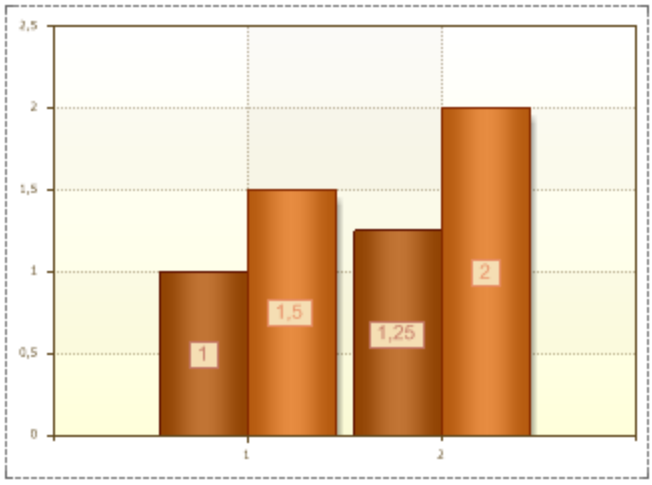
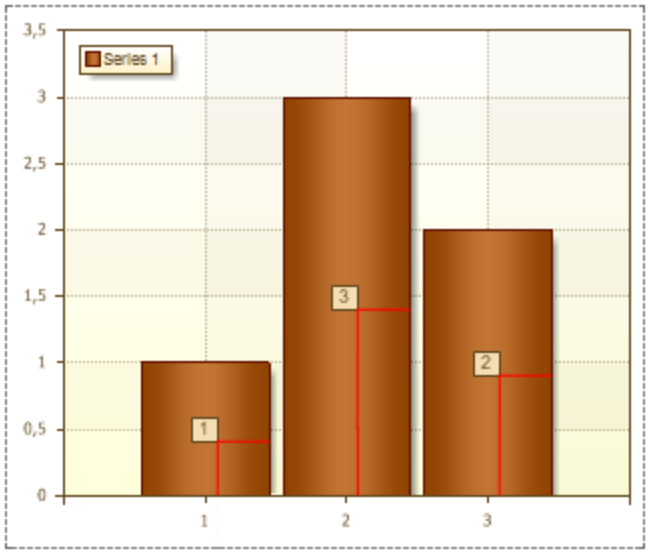



5.27.6.1.5 Angle Property

The **Angle** property allows changing the inclination angle of Series Labels. By default, this property is set to **0** (Series Labels is not inclined). The picture below shows the situation when the **Angle** property is set to **0**:




The value of the property can be negative and positive. If a value of the property is negative then Series Label is inclined anticlockwise. If the value of the property is positive then Label in inclined clockwise. The picture below shows a chart sample, which the **Angle** property for Series Labels is set to **45**:

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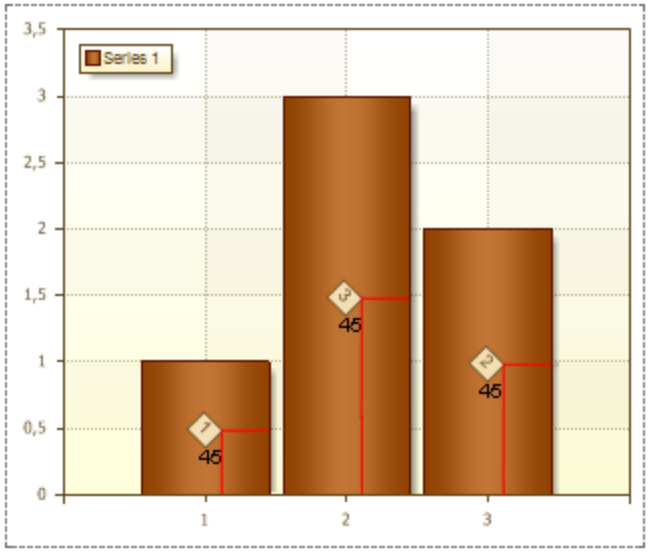
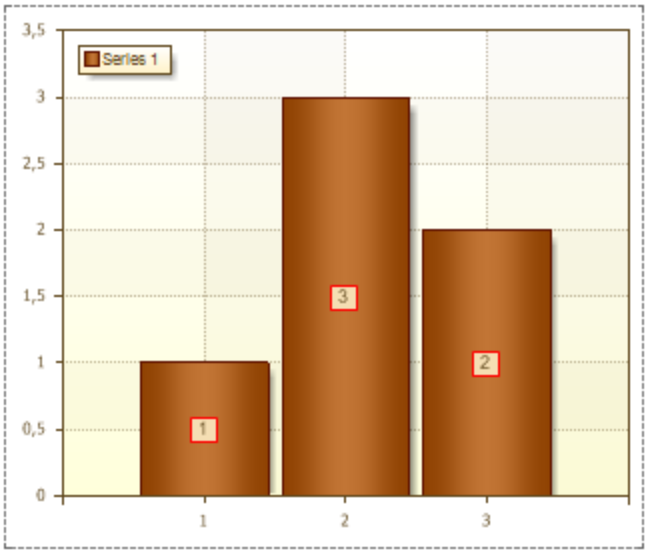



5.27.6.1.6 Draw Border Property

The **Draw Border** property allows showing/hiding a border of Series Labels. It has two values: **true** and **false**. If the **Draw Border** is set to **true**, then the border is shown. The picture below shows a chart with borders around Series Labels (the borders are red):




If the **Draw Border** is set to **false**, then the border is hidden. The picture below shows a chart without borders around Series Labels:

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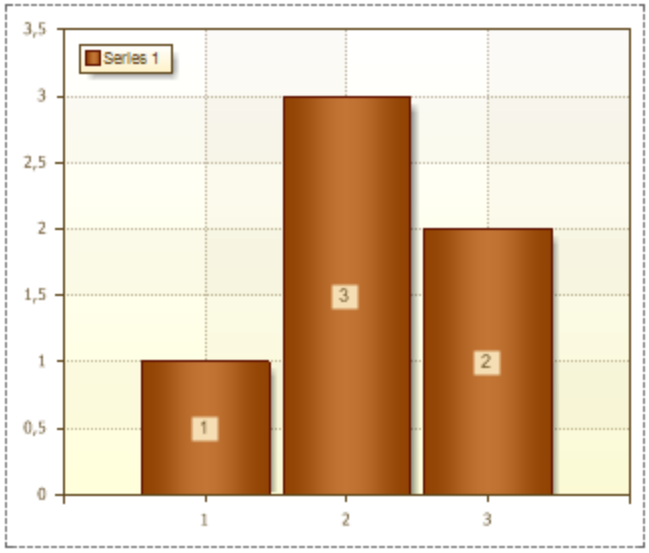
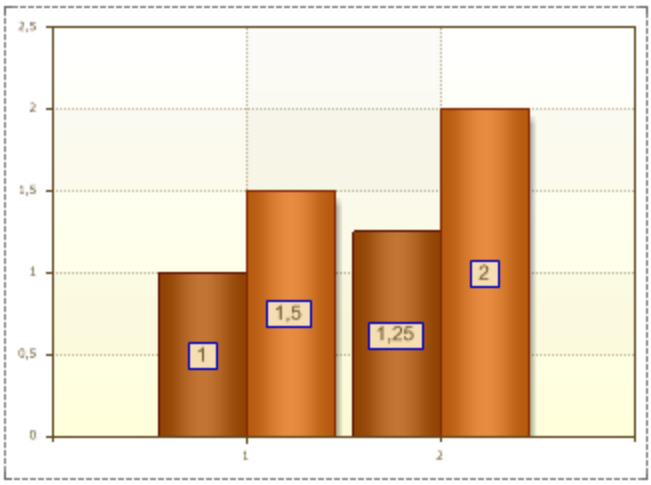



5.27.6.1.7 BorderColor Property

The **Border Color** property is used to change the border color of Series Labels. The picture below shows a chart which Series Labels borders are blue:




5.27.6.1.8 Antialiasing Property

**Antialiasing** property allows you producing smooth-edged Series Labels by partially filling the edge pixels. As a result, the edges of Series Labels blend into the background. The picture below shows a chart with the **Antialiasing** property set to **true**:

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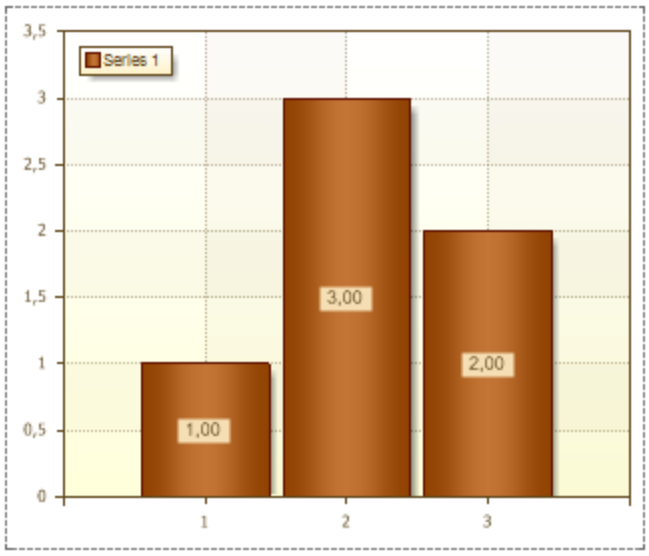
The picture below shows a chart with the **Antialiasing** property set to **false**:

### 5.27.6.2 Format Property

The **Format** property is used to format the contents of Series Labels. This property has multiple values.

**Number.** The **N** value of the **Format** property is used for the general display of numbers. When filling the **Format**, after the **N** value, it is possible to specify the number of decimal places that you want to use. If no numbers are specified after **N** then decimal places will be shown only if they are present as a result of calculation. The picture below shows a chart with the **Format** property of Series Labels set to **N**:




**Currency.** The **C** value of the **Format** property is used to display Series Labels with a currency symbol. After the **C** value, it is possible to specify the number of decimal places that you want to use. The picture below shows a chart with the **Format** property of Series Labels set to **C**:

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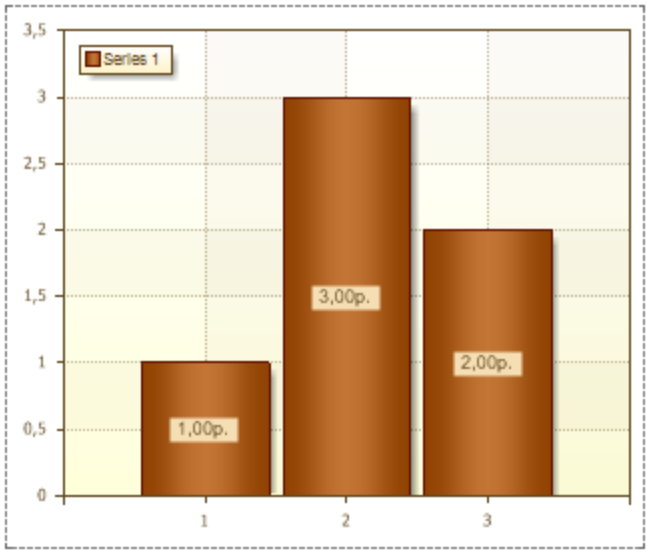
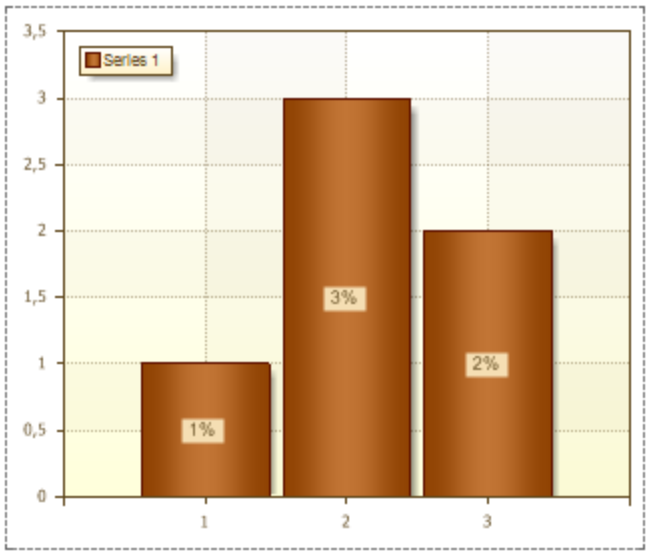



**Percentage**. The **P** value of the **Format** property is used to display Series Labels with percent symbol. After the **P** value, it is possible to specify the number of decimal places that you want to use. The picture below shows a chart with the **Format** property of Series Labels set to **P**:




**Date**. The **MM/dd/yyyy**, **MMMM dd**, **yyyy MMMM** values of the **Format** property convert values of arguments to date. **MM/dd/yyyy** - the date is shown like "01.20.2010", **MMMM dd** - the date is shown like "September 29", **yyyy MMMM** - the date is shown like "2010 March". The picture below shows a chart and with the **Format** property set to **MM/dd/yyyy**

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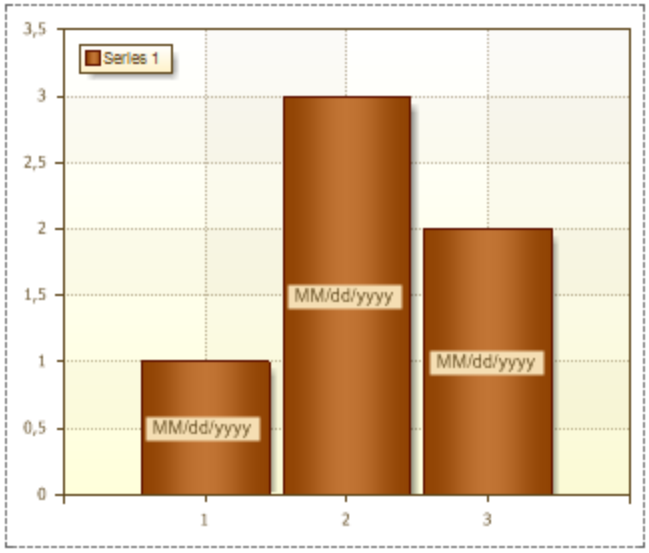
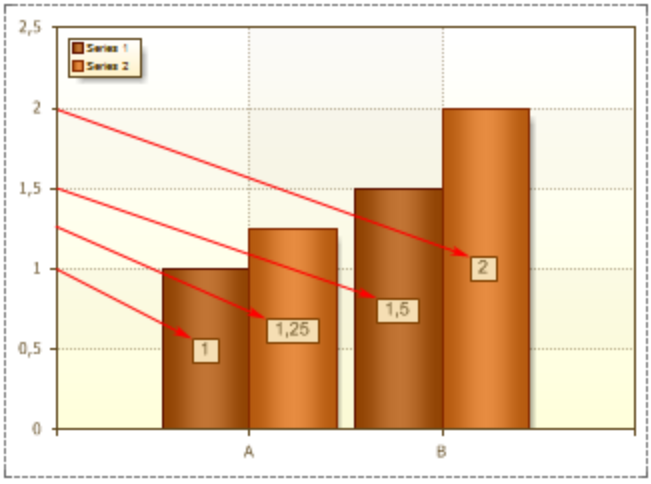



To reset the **Format** property of selected cells, and return to the default format, clear the Format by selecting empty field.

### 5.27.6.3 ValueType Property

The **Value Type** property is used to specify the type of a value that appears in the series labels. This property may take the following values: **Value**, **Series Title**, **Argument**, **Value - Argument**, **Argument - Value**, **Series Title - Value**, **Series Title - Argument**.

**Value**. The Series Labels are series values. The picture below shows an example of a chart with the **Value Type** property set to **Value**:




**Series Title**. The Series Labels are records in the **Title** field in the **Series Editor**. The picture below shows an example of a chart with the **Value Type** property set to **Series Title**:

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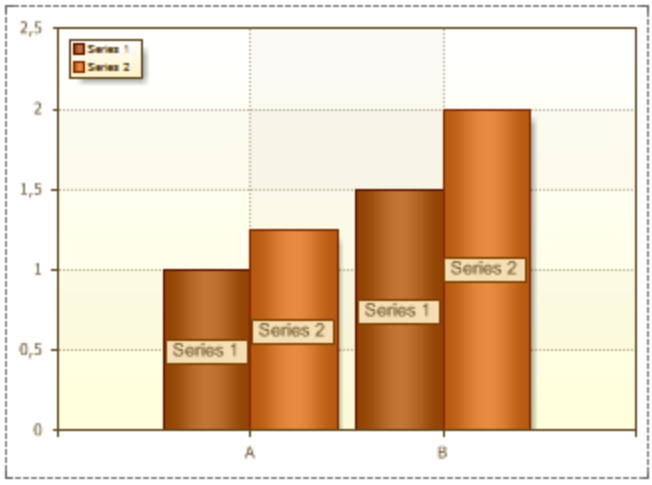
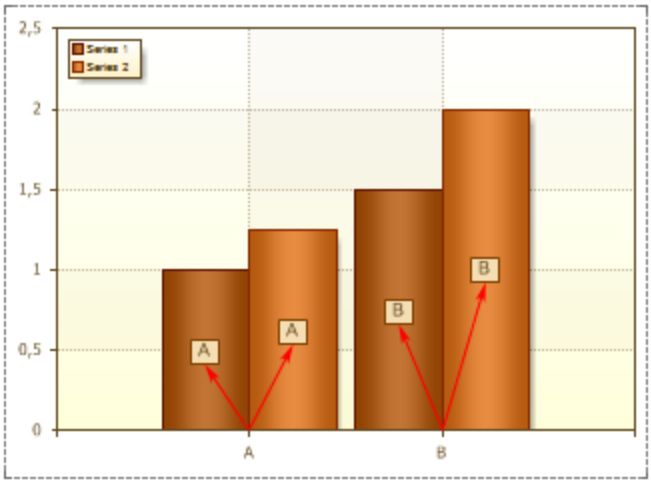



**Argument**. The Series Labels are the arguments. The picture below shows an example of a chart with the **Value Type** property set to **Argument**:




**Value - Argument**. The Series Labels are **Values** and **Arguments** of series. The picture below shows an example of a chart with the **Value Type** property set to **Value - Argument**:

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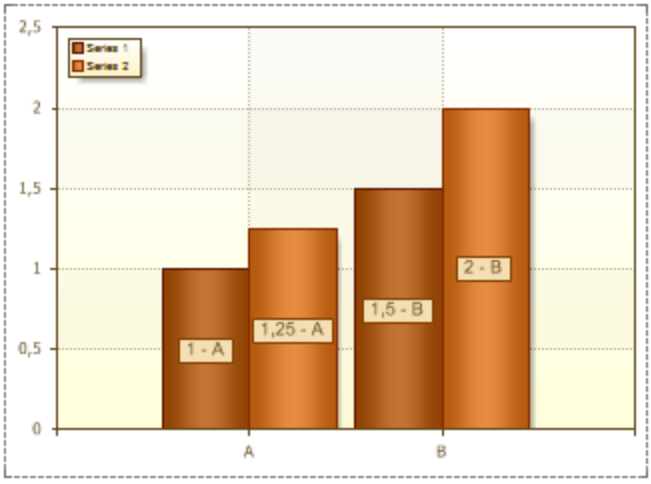
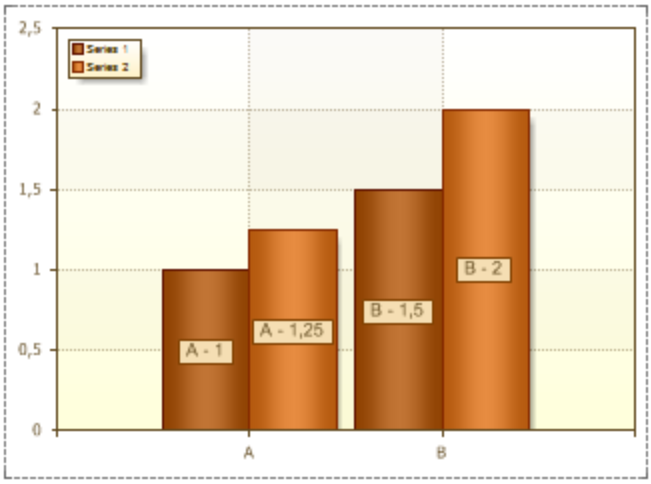



**Argument - Value**. The Series Labels are **Arguments** and **Values** of series. The picture below shows an example of a chart with the **Value Type** property set to **Argument - Value**:




**Series Title - Value**. The Series Labels are **Series Titles** and **Values**. The picture below shows an example of a chart with the **Value Type** property set to **Series Title - Value**:

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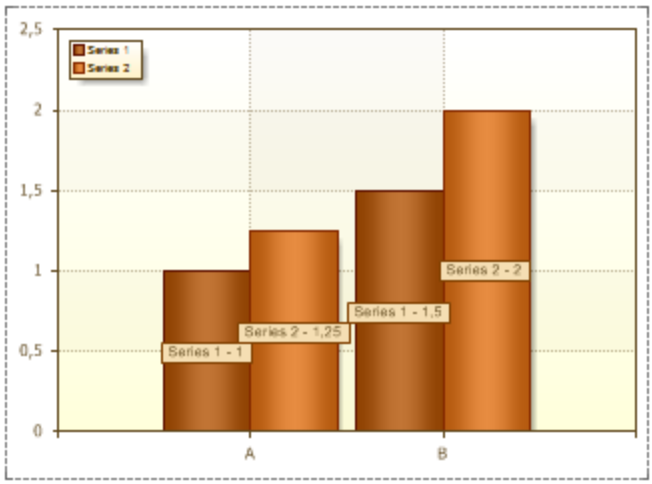
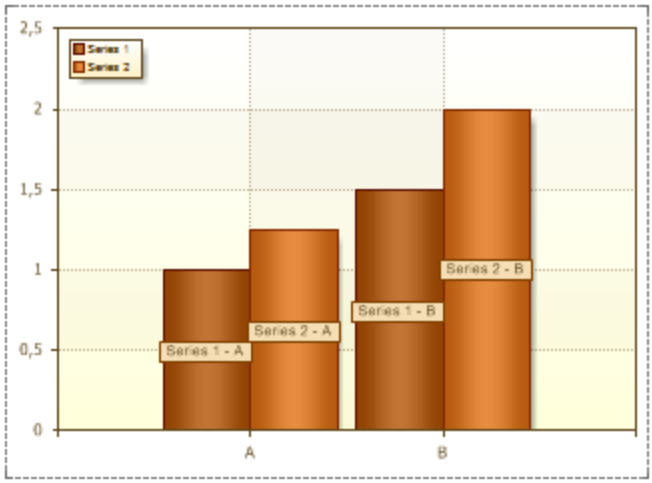



**Series Title - Argument**. The Series Labels are **Series Titles** and **Arguments**. The picture below shows an example of a chart with the **Value Type** property set to **Series Title - Argument**:




### 5.27.6.4 ValueType Separator

The **Value Type Separator** property is used to change the type of values separator in the series labels. By default, the **Value Type Separator** property is set to **'-'**. Any character or group of characters typed in the field of the **Value Type Separator** property, will be the delimiter (including the **'space'**). If the field is unfilled, then the separator is a **'space'**.

### 5.27.6.5 PreventIntersection Property

The **Prevent Intersection** property is used to avoid overlapping between series labels and with the borders of rendered values and axes. By default, the **Prevent Intersection** property is set to **false** and series labels may overlap, what makes them look bad or unreadable. The picture below shows an example of a chart, with the **Prevent Intersection** property set to **false**:

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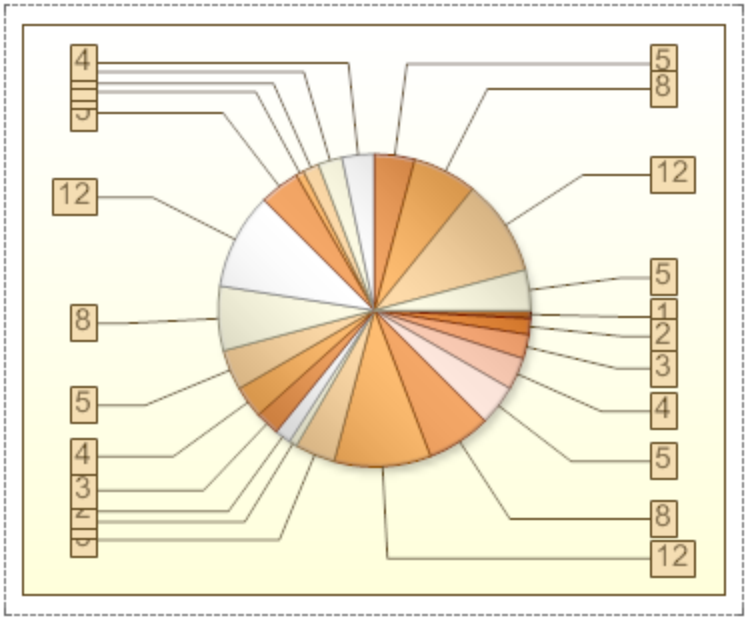
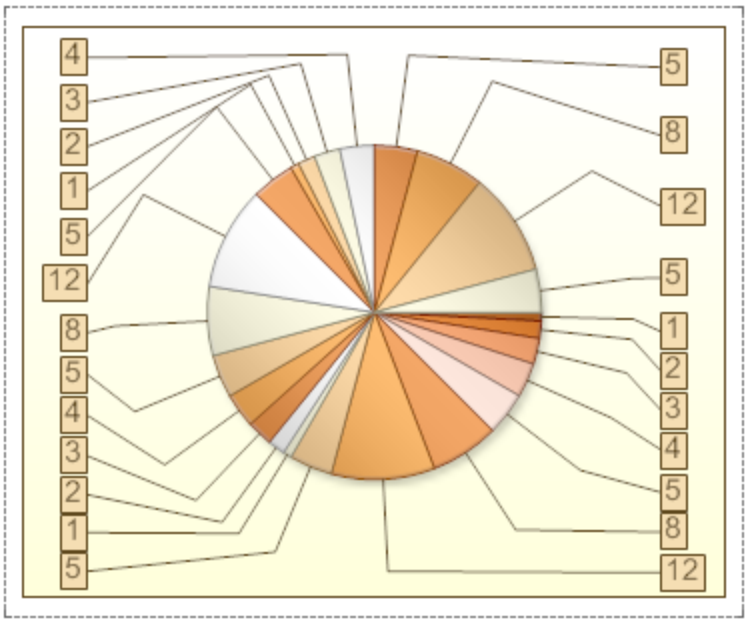



If the **Prevent Intersection** property is set to **true**, then the series labels will not overlap. The picture below shows an example of a chart, with the **Prevent Intersection** property set to **true**:




### 5.27.6.6 ShowOnZeroValues Property

Sometimes, when designing charts, 0 values of series can be met. Series labels of zero values can be displayed. The **Show on Zero Values** property is used to show/hide these series labels. If the **Show on Zero Values** property is set to **false**, then series labels of zero values will be hidden. The picture below

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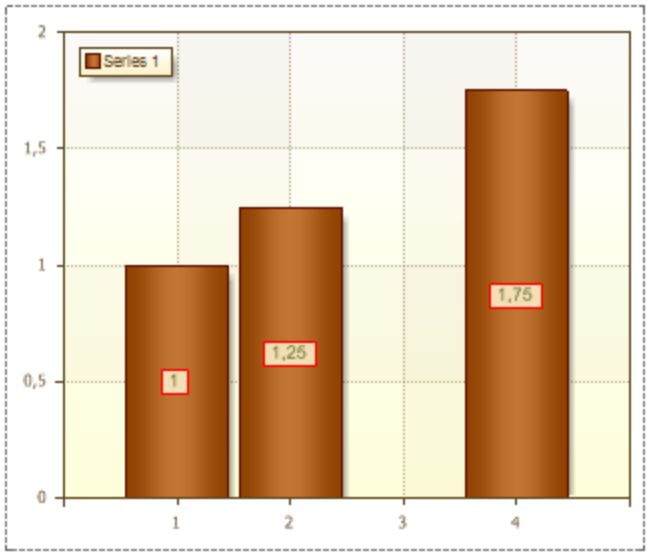
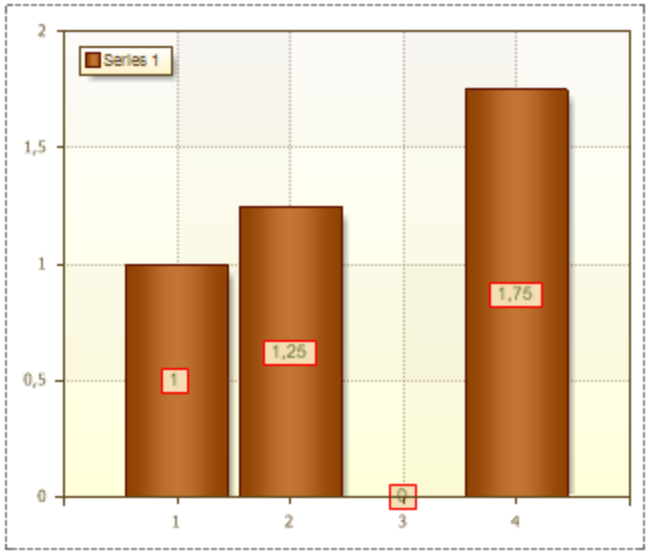
shows an example of a chart with a zero value and the the **Show on Zero Values** property is set to **false**:




In this chart the 3rd argument is 0, and the series labels is not displayed. If the **Show on Zero Values** property is set to **true**, then series labels of zero values will be shown.The picture below shows an example of a chart with a zero value and the the **Show on Zero Values** property is set to **true**:




As can be seen from this picture, the 3rd argument is 0, and its title was shown.

### 5.27.6.7 Step Property

The **Step** property allows changing the step through what the Series Labels will be shown. By default, the **Step** property is set to **0**, so Series Labels will be shown on each Series. The picture below shows a

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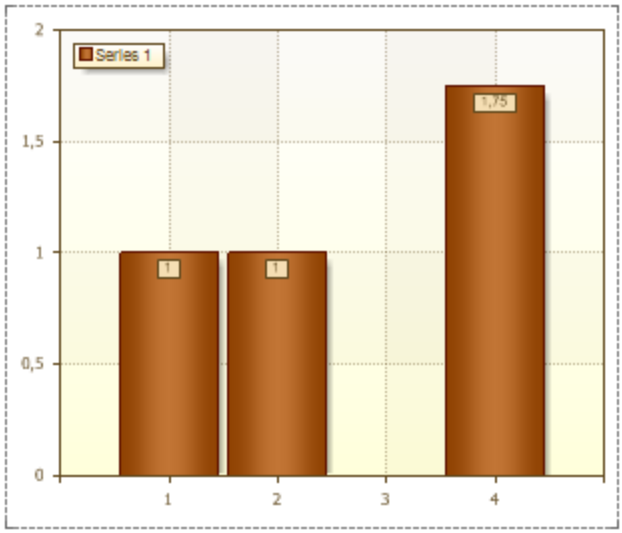
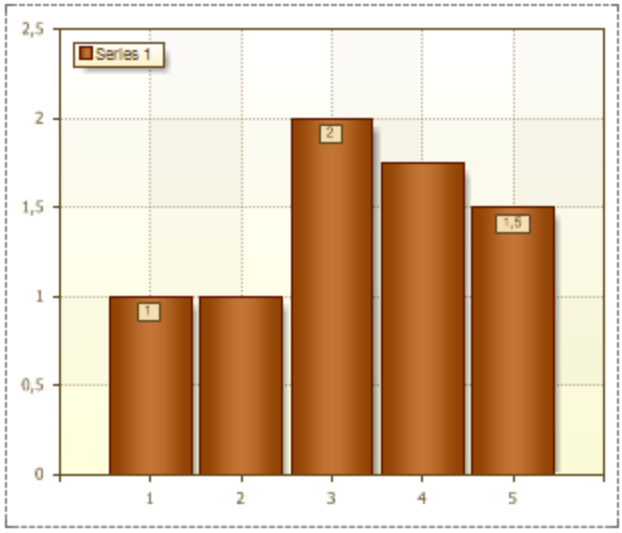
chart with the **Step** property of Series Labels set to **0**:




If the **Step** property is set to **2**, then Series Labels will be shown as it is shown on picture below:




The value **1** of the **Step** property indicates that Series Labels will be shown for each value of Series.

### 5.27.6.8 TextBefore and TextAfter Properties

The **Text before** and **Text after** properties allows showing text before and after Series Labels. It is not necessary to use these properties. The pictures below show chart samples with a text before Series Labels (left) and a text after Series Labels (right):

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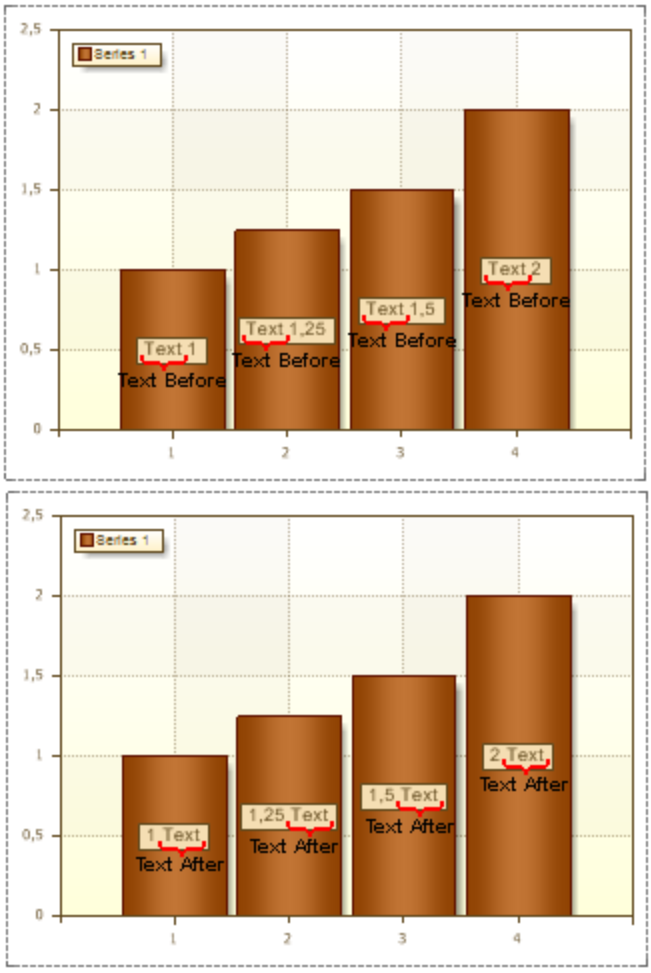


### 5.27.6.9 Visible Property

The **Visible** property is used to show/hide Series Labels, depending on the selected value. If the **Visible** property is set to **true**, then Series Labels are shown. The picture below shows a chart with Series Labels:

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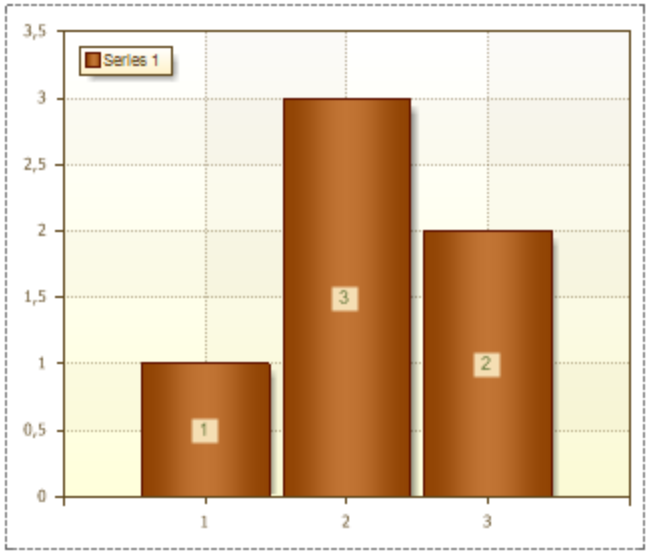
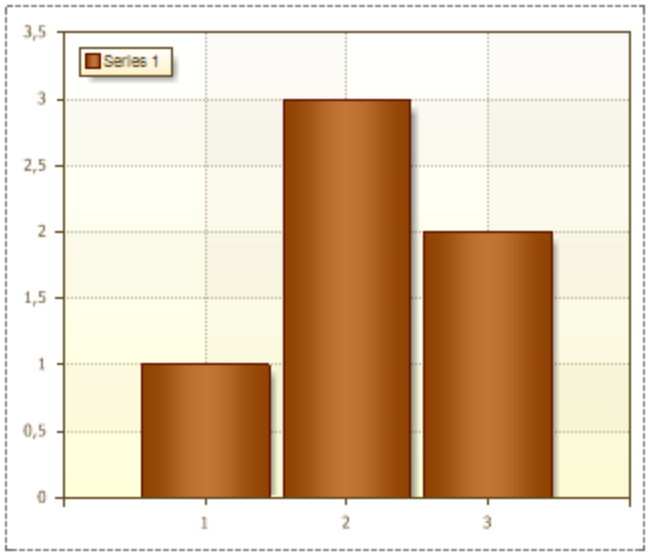



If the **Visible** property is set to **false**, then Series Labels are not displayed. The picture below shows a chart with hidden Series Labels:




By default, the **Visible** property is set to **true**.

#### 5.27.6.10 Marker

**Marker** is an icon that is shown near the Series Labels. It is possible to change height and width of a **Marker**. The **Marker** takes the color of Series. The picture below shows a chart with **Markers**:

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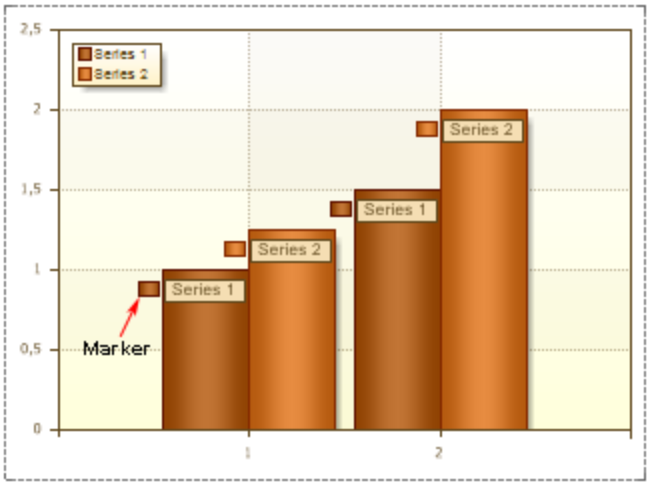
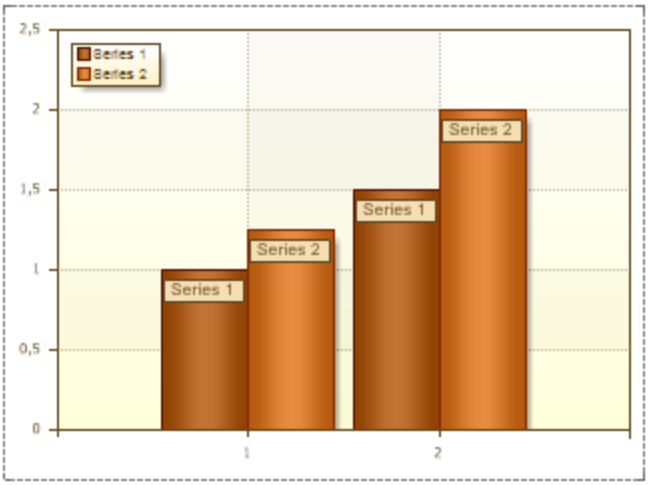



5.27.6.10.1 MarkerVisible Property

If to set the **Marker Visible** property to true then the **Marker** is shown. By default, the **Marker Visible** property is set to **false** and Markers are not visible. The picture below shows a chart with the **Marker Visible** property set to **false**:




The picture below shows a chart with the **Marker Visible** property set to **true**:

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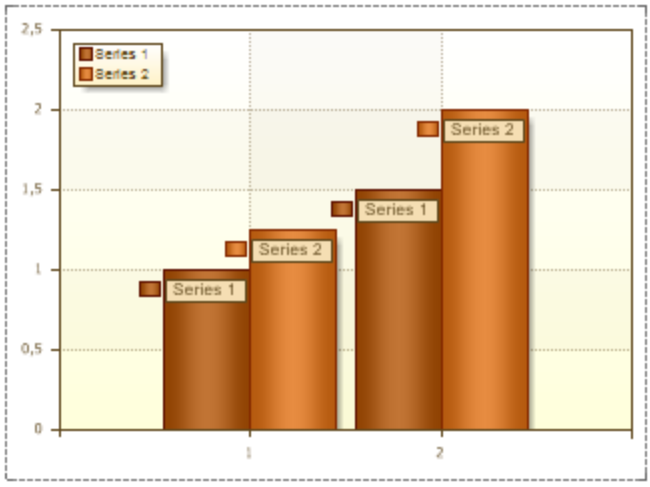
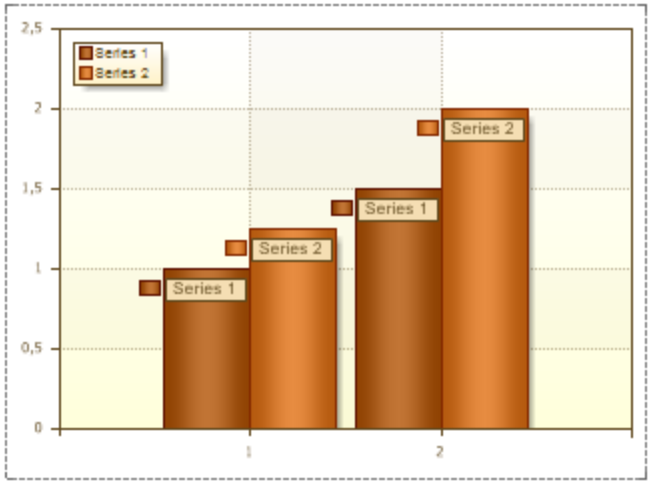



5.27.6.10.2 MarkerSize Property

It is possible to change height and width of a **Marker**. The **Marker Size** property is used for this. It is possible to change **Height** and **Width** of a Marker. Marker Height and Width are set in pixels. If both values are more than **0**, then the Marker is shown.

5.27.6.10.3 MarkerAlignment Property

The **Marker Alignment** property allows aligning a marker on the left or right of Series Labels. If the **Marker Alignment** property is set to **Right**, then the marker is aligned to the left of Series Labels. The picture below shows the Markers aligned left:




If the **Marker Alignment** property is set to **Right**, then the marker is aligned to the right of Series Labels. The picture below shows the Markers aligned right:

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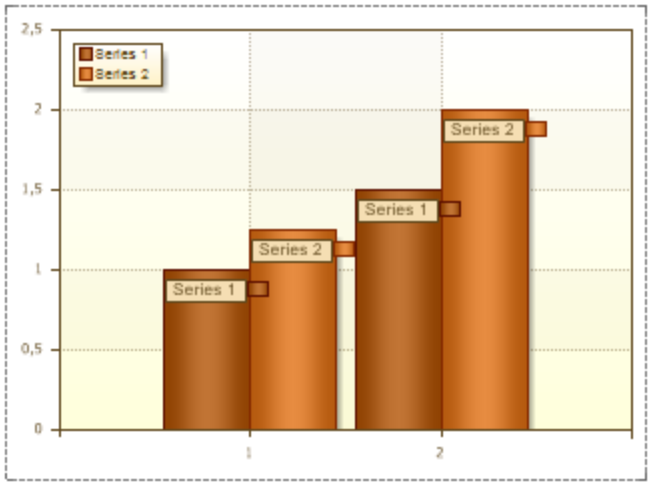
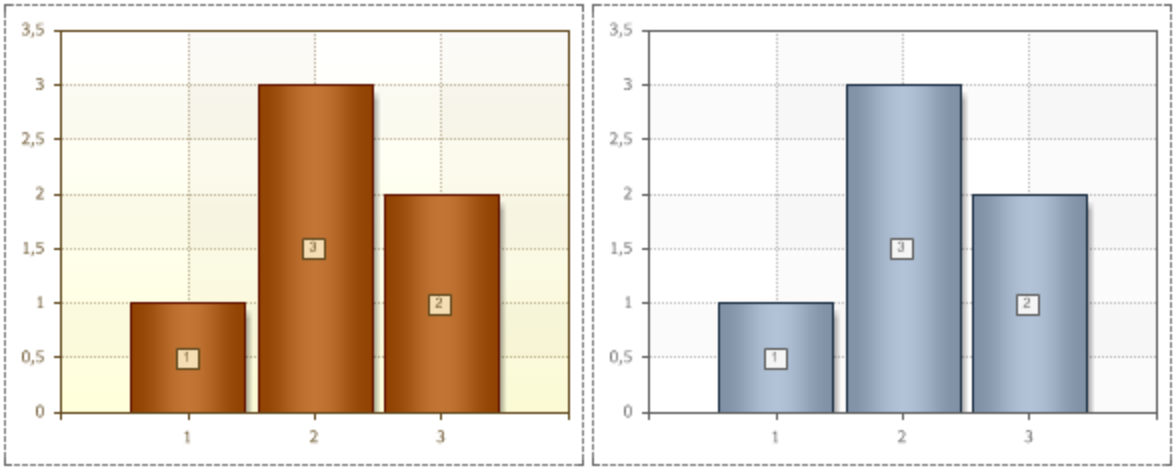



By default, the **Marker Alignment** property is set to **Left**.

## 5.27.7 Style

A style is a combination of various design attributes which can be applied to charts. The **Style** property is used to change the appearance of charts. The value of this property will be one of the chosen style diagrams. Adding custom styles to the list of the chart styles can be done using the **Style Designer**. Also, it is possible to apply a style to each series. When working with chart styles, it is necessary to take into account the value of the **AllowApplyStyle** property. The picture below shows an example of two charts with different styles:




### 5.27.7.1 AllowApplyStyle Property

The **AllowApplyStyle** property is used for whether to apply a selected style in the field of the **Style** property. If the **AllowApplyStyle** property is set to **true**, then the report generator, when rendering, will take into account the value of the **Style** property. If the **AllowApplyStyle** property is set to **false**, then the report generator, when rendering, will take into account the values of appearance of series.

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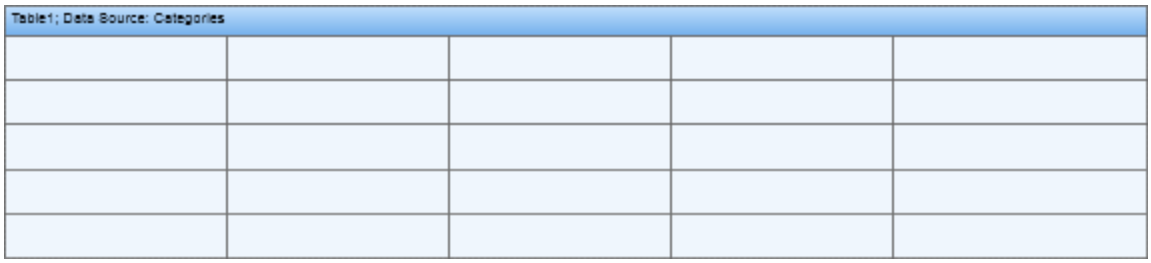
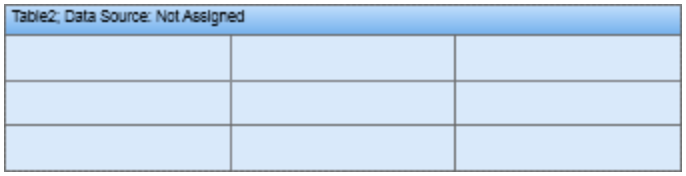
# 5.28 Table

The **Table** component is used to output data in a report. This component is similar to spreadsheets. The table consist of rows and columns in what data can be placed. See on a picture below a Table component with 5 columns and 5 rows.

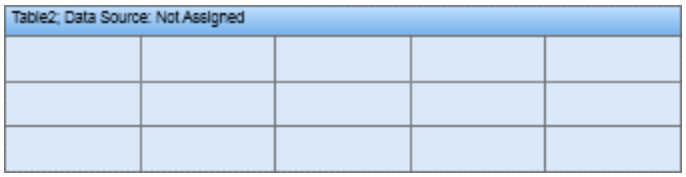



## 5.28.1 Columns

The **ColumnCount** property of the Table component is used to define the number of columns in a table. On the picture below the table with 3 columns is shown.

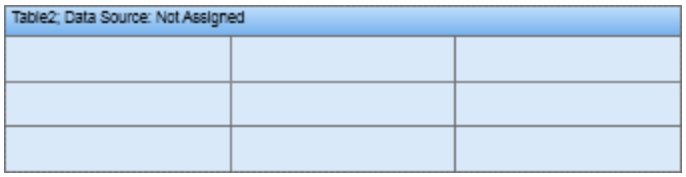



On the picture below the table with 5 columns is shown.




## 5.28.2 Rows

The **RowCount** property of the Table component is used to define the number of rows in a table. On the picture below the table with 3 rows is shown.

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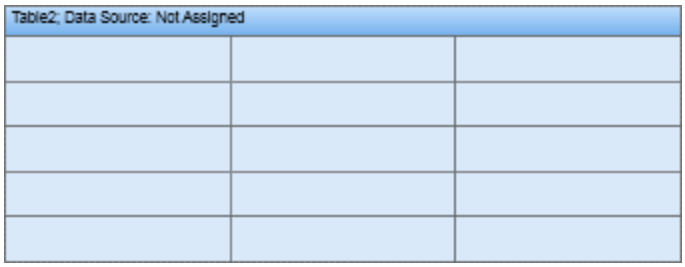
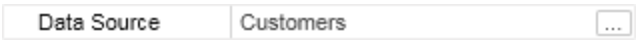
On the picture below the table with 5 rows is shown.

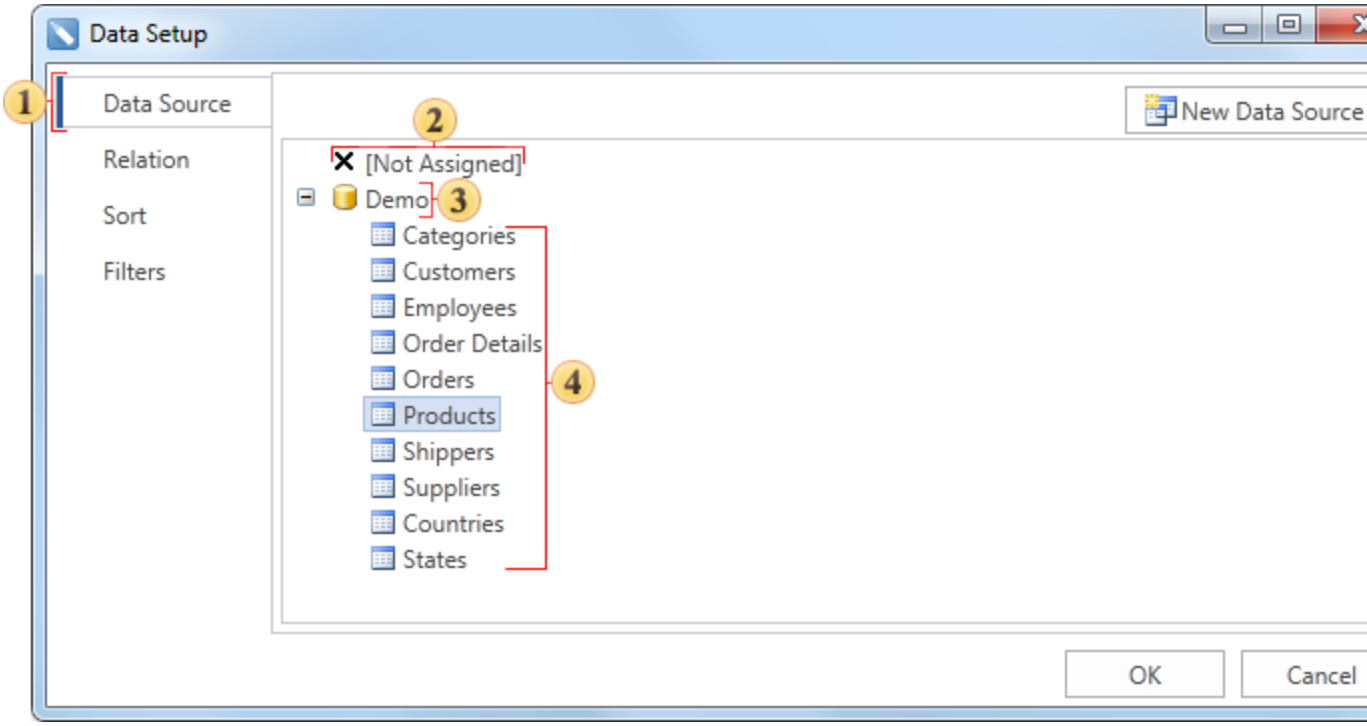



## 5.28.3 Data Source

It is necessary to define the data source to output data in the **Table** component. The reporting tool should know how many times do cells must be printed in a table. Therefore, the **Table** component should have the reference to the data source. There are several ways how to do this. You may use the Table editor. Double click on the Table header to call the editor. Also the Table editor can be called using the **DataSource** property of a Table.




The Table editor allows selecting data source.
A data source can be selected by clicking the first tab of the editor. All data sources are grouped in categories. Each category corresponds to one connection with data in the report data dictionary. The picture below shows the Table editor.

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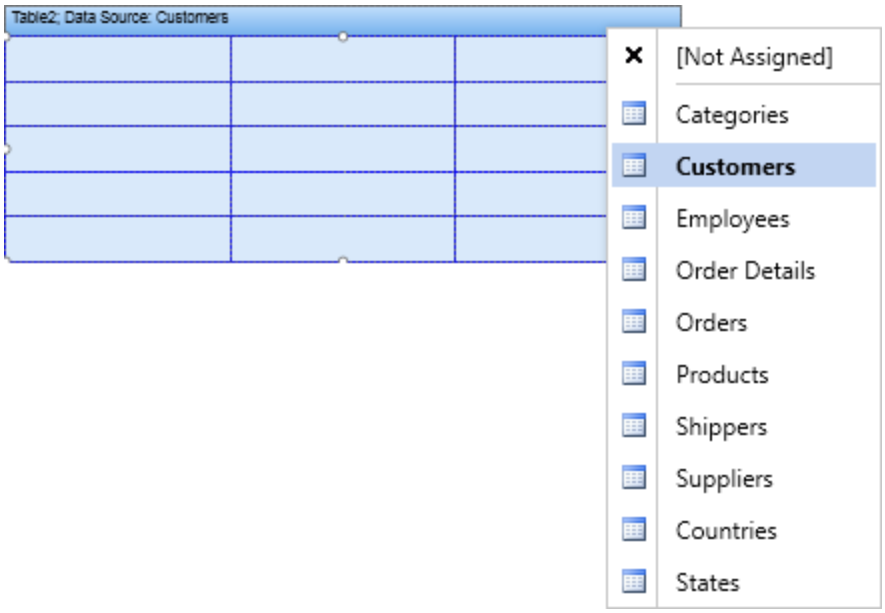
1. The tab to select the data source;
2. Select this node if you do not need to specify the data source;
3. The "Demo" data category;
4. The "Demo" data source category.

The data source can be also selected using the quick access buttons.




## 5.28.4 MasterComponent Property

It is necessary to put two tables on a page for creating the Master-Detail using the Table component. Specify Master data source for the first table (this table is the Master table). Specify Detail data source to the second table (this table is the Detail table). Then you should bind these two tables using the **MasterComponent** property of a second table. There are several ways to set the Master table. The first way - you may set the Master table in the property grid.

The second way is to set the Master table in the Table designer.

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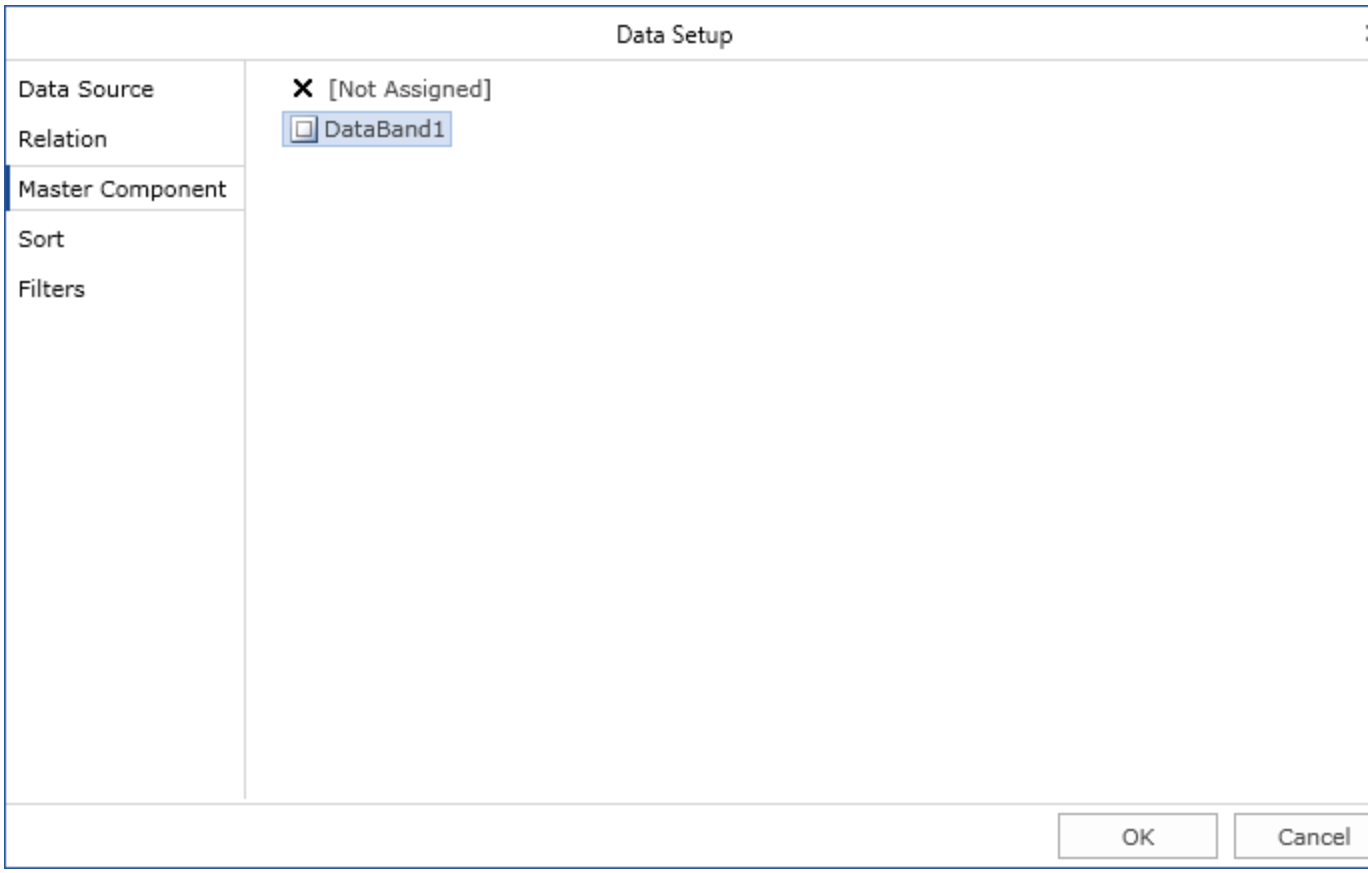
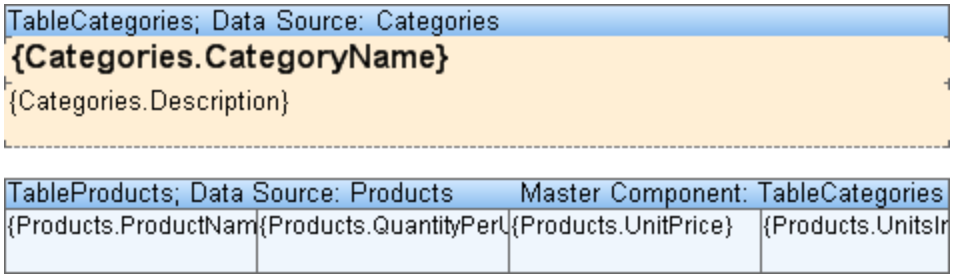



After filling the **MasterComponent** component two tables will be related to each other. When printing one data row from the Master data source (and, correspondingly, printing the Master table), the printing of appropriate rows from the Detail data source occurs (and, correspondingly, printing the Detail table). The Detail band will not be printed separately, only in relation to the Master band. On a picture below two related tables are represented.




The picture below shows the result of two tables rendering.

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**Beverages**

Soft drinks, coffees, teas, beers, and ales

| | | | |
|---|---|---|---|
| Chai | 10 boxes x 20 bags | 18 | 39 |
| Chang | 24 - 12 oz bottles | 19 | 17 |
| Guaraná Fantástica | 12 - 355 ml cans | 4,5 | 20 |
| Sasquatch Ale | 24 - 12 oz bottles | 14 | 111 |
| Steeleye Stout | 24 - 12 oz bottles | 18 | 20 |
| Côte de Blaye | 12 - 75 cl bottles | 263,5 | 17 |
| Chartreuse verte | 750 cc per bottle | 18 | 69 |
| Ipoh Coffee | 16 - 500 g tins | 46 | 17 |
| Laughing Lumberjack | 24 - 12 oz bottles | 14 | 52 |

## 5.28.5 Relation Property

Besides filling the **MasterComponent** property it is necessary to fill the **DataRelation** property of the Detail table. The relation is used for selecting the detailed data only for the specific row of the Master table. If the relation will not be specified then all records of the Detail data source of the Detail table will be output for each row of the Master data source of the Master table.

The relation can be selected using the **Data** table editor.

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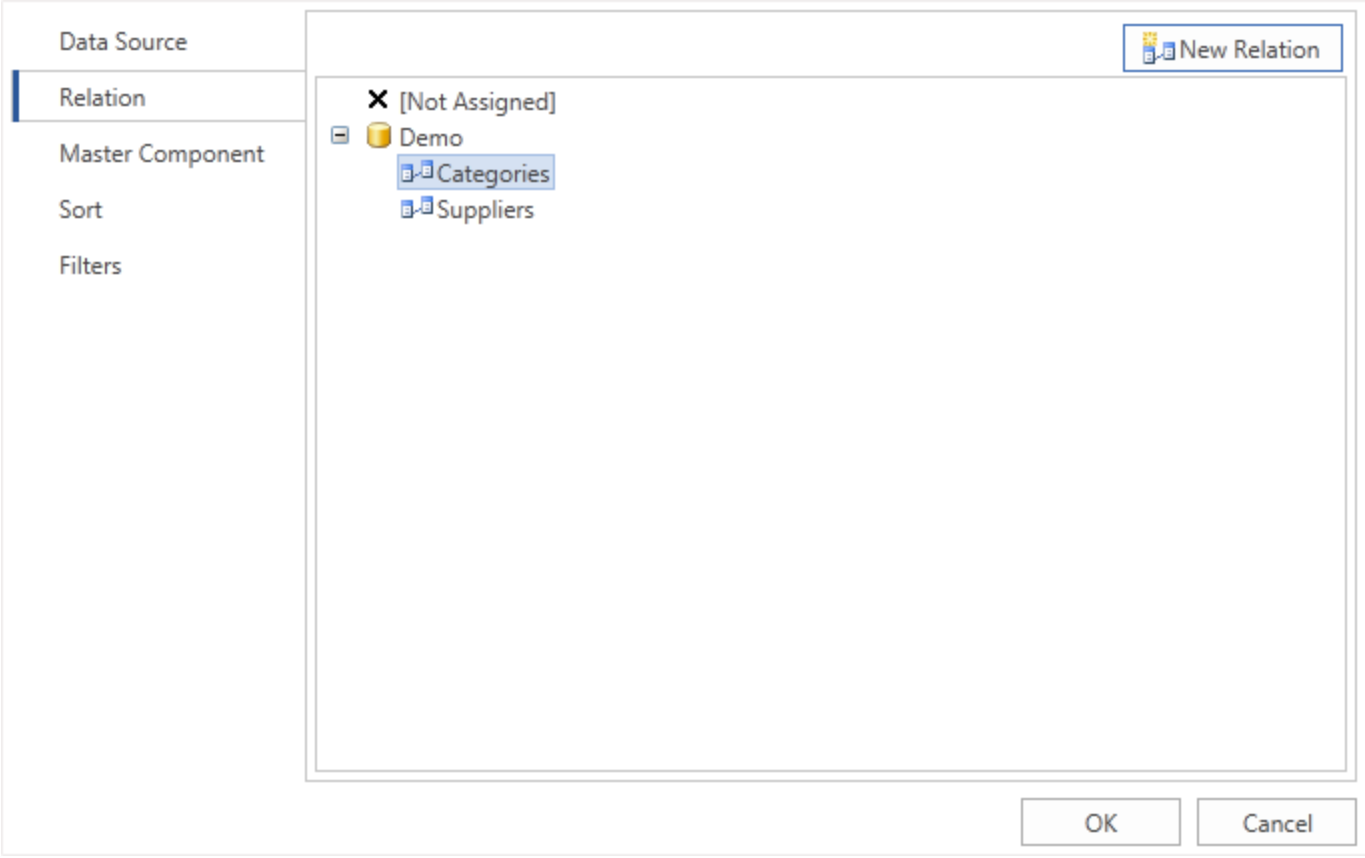


The selection is done between relations which are created between Master and Detail data sources and in what the Detail data source is the child data source.

## 5.28.6 Tables and Bands in Master-Detail Lists

It is allowed binding bands and tables when rendering the Master-Detail reports. For example, the master component can be a band and the Detail component can be a table. The template of such a report is shown on a picture below.

The number of **Data** bands and **Tables** which interacts between each other is unlimited.

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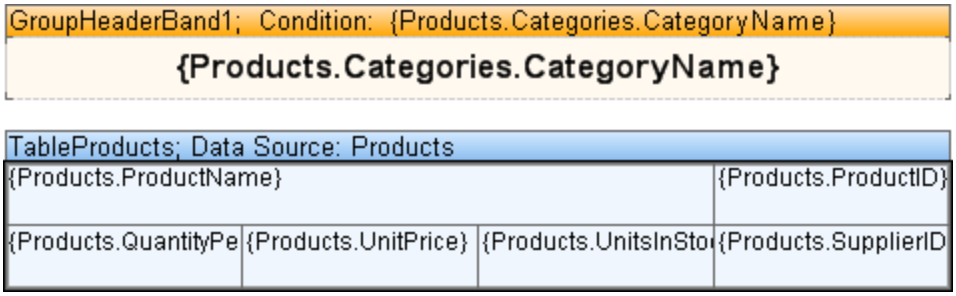
## 5.28.7 Tables and Grouping

It is easy to add grouping to a report with a table. For this you should put the **GroupHeader** band before the **Table** component and the **GroupFooter** band after the Table. The condition of grouping is specified for the **GroupHeader** component. The text component that outputs the condition of grouping is placed in the **GroupHeader** band. It is enough to group a table by the specified condition. On a picture below the table of grouping is shown.




See the picture below that demonstrates the report with grouping and a table.

**Beverages**

| | | | |
|---|---|---|---|
| Côte de Blaye | | | 38 |
| 12 - 75 cl bottles | 263,5 | 17 | 18 |
| Chartreuse verte | | | 39 |
| 750 cc per bottle | 18 | 69 | 18 |
| Steeleye Stout | | | 35 |
| 24 - 12 oz bottles | 18 | 20 | 16 |
| Guaraná Fantástica | | | 24 |
| 12 - 355 ml cans | 4,5 | 20 | 10 |

## 5.28.8 Table Header

Rows in a Table component can be specified as a header. In other words these rows will always be output in the beginning of a table. The **HeaderRowsCount** property is used to indicate how many rows will shown as headers. By default this property is set to 0. The number of header rows cannot be more than the number of rows in a table.

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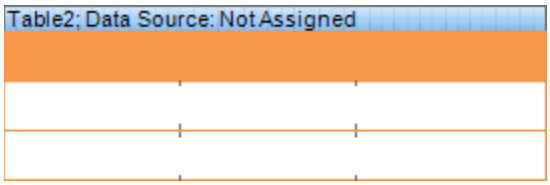
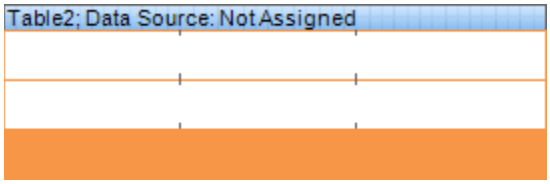



## 5.28.9 Table Footer

A table may include footer rows. These rows are output on the bottom of a table. The FooterRowsCount property is used to indicate how many rows will be used as footers. By default this property is set to 0. The number of footer rows cannot be more than the number of rows in a table.




## 5.28.10 Cells Width Autochange

When report rendering using the **Table** component, width of some cells can be changed. As a result this may lead to the change of a table size. There are two properties of Table component which are used to adjust cells size: the **AutoWidthType** property and the **AutoWidth** property.

### 5.28.10.1 AutoWidth Property

The **AutoWidth** property of a **Table** component indicates whether the reporting tool will fix the cells size after the report rendering.

- The **AutoWidth** property is set to **None**. Column size is not changed. In this case setting the **AutoWidthType** property of a table and the **FixedWidth** property of cells will not affect on a table.
- The **AutoWidth** property is set to **Page**. If a rendered table is placed on several pages then columns will have different width on different pages. It depends on data.
- The **AutoWidth** property is set to **Report**. If a rendered table is placed on several pages then columns will have the same width in a report.

### 5.28.10.2 AutoWidthType Property

The **AutoWidthType** property of a table indicates how the reporting tool will fix cells width after report rendering.

- **None**

Columns width is set depending on the cells contents of all table (the longest line by column is taken). If the **FixedWidth** property is set to true, then the column size is not changed.

| | | | |
|---|---|---|---|
| Franchi S.p.A. | Via Monte Bianco 34 | 011-4988260 | Sales Representative |
| Furia Bacalhau e Frutos do Mar | Jardim das rosas n. 32 | (1) 354-2534 | Sales Manager |
| Galería del gastrónomo | Rambla de Cataluña, 23 | (93) 203 4560 | Marketing Manager |
| Godos Cocina Típica | C/ Romero, 33 | (95) 555 82 82 | Sales Manager |

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| CompanyName | Address | Phone | ContactTitle |
|---|---|---|---|
| Gourmet Lanchonetes | Av. Brasil, 442 | (11) 555-9482 | Sales Associate |
| Great Lakes Food Market | 2732 Baker Blvd. | (503) 555-7555 | Marketing Manager |
| GROSELLA-Restaurante | 5ª Ave. Los Palos Grandes | (2) 283-2951 | Owner |

### FullTable

Column width is set depending on the table width. In other words the width of all column cells is checked first (the column width is set by the longest line). If there is free space then it is equally distributed between all columns. If there is no enough space to output the longest lines, then the width of columns is decreased in equal parts between all columns.

| | | | |
|---|---|---|---|
| Franchi S.p.A. | Via Monte Bianco 34 | 011-4988260 | Sales Representative |
| Furia Bacalhau e Frutos do Mar | Jardim das rosas n. 32 | (1) 354-2534 | Sales Manager |
| Galería del gastrónomo | Rambla de Cataluña, 23 | (93) 203 4560 | Marketing Manager |
| Godos Cocina Típica | C/ Romero, 33 | (95) 555 82 82 | Sales Manager |

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| CompanyName | Address | Phone | ContactTitle |
|---|---|---|---|
| Gourmet Lanchonetes | Av. Brasil, 442 | (11) 555-9482 | Sales Associate |
| Great Lakes Food Market | 2732 Baker Blvd. | (503) 555-7555 | Marketing Manager |
| GROSELLA-Restaurante | 5ª Ave. Los Palos Grandes | (2) 283-2951 | Owner |

### LastColumns

Column width is set depending on the table width. In other words the width of all column cells is checked first (the column width is set by the longest line). If there is free space then it is distributed to the last column which **FixedWidth** property is set to **false**. If there is no enough space to output the

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longest lines, then the width of the last columns is decreased and distributed between all columns which **FixedWidth** properties are set to **false**.

| | | | |
|---|---|---|---|
| La corne d'abondance | 67, avenue de l'Europe | 30.59.84.10 | Sales Representative |
| La maison d'Asie | 1 rue Alsace-Lorraine | 61.77.61.10 | Sales Manager |
| Laughing Bacchus Wine Cellars | 1900 Oak St. | (604) 555-3392 | Marketing Assistant |
| Lazy K Kountry Store | 12 Orchestra Terrace | (509) 555-7969 | Marketing Manager |

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| CompanyName | Address | Phone | ContactTitle |
|---|---|---|---|
| Lehmanns Marktstand | Magazinweg 7 | 069-0245984 | Sales Representative |
| Let's Stop N Shop | 87 Polk St. Suite 5 | (415) 555-5938 | Owner |
| LILA-Supermercado | Carrera 52 con Ave. Bolívar #65-98 Llano Largo | (9) 331-6954 | Accounting Manager |

## 5.28.11 FixedWidth Property

The **FixedWidth** property is used together with the **AutoWidth** property of a **Table** component. If a table changes the column size (depending on the **AutoWidth** property) then the **FixedWidth** property that is set to **true** does not allow these changes. On a pictures below samples of using these property is shown. On the first picture the **FixedWidth** property is not used.

| Company | Address | Phone | Contact |
|---|---|---|---|
| Alfreds Futterkiste | Obere Str. 57 | 030-0074321 | Sales Representative |
| Ana Trujillo Emparedados y helados | Avda. de la Constitución 2222 | (5) 555-4729 | Owner |
| Antonio Moreno Taquería | Mataderos 2312 | (5) 555-3932 | Owner |
| Around the Horn | 120 Hanover Sq. | (171) 555-7788 | Sales Representative |
| Berglunds snabbköp | Berguvsvägen 8 | 0921-12 34 65 | Order Administrator |
| Blauer See Delikatessen | Forsterstr. 57 | 0621-08460 | Sales Representative |
| Blondesddsl père et fils | 24, place Kléber | 88.60.15.31 | Marketing Manager |

On the second picture the **FixedWidth** property of the Phone column is set to **true**.

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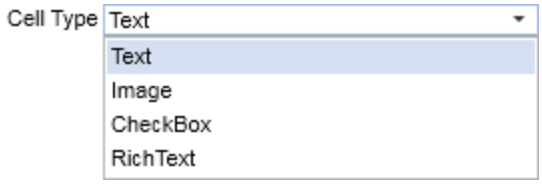
| Company | Address | Phone | Contact |
|---|---|---|---|
| Alfreds Futterkiste | Obere Str. 57 | 030-0074321 | Sales Representative |
| Ana Trujillo Emparedados y helados | Avda. de la Constitución 2222 | (5) 555-4729 | Owner |
| Antonio Moreno Taquería | Mataderos 2312 | (5) 555-3932 | Owner |
| Around the Horn | 120 Hanover Sq. | (171) 555-77 | Sales Representative |
| Berglunds snabbköp | Berguvsvägen 8 | 0921-12 34 6 | Order Administrator |
| Blauer See Delikatessen | Forsterstr. 57 | 0621-08460 | Sales Representative |
| Blondesddsl père et fils | 24, place Kléber | 88.60.15.31 | Marketing Manager |

## 5.28.12 CellType Property

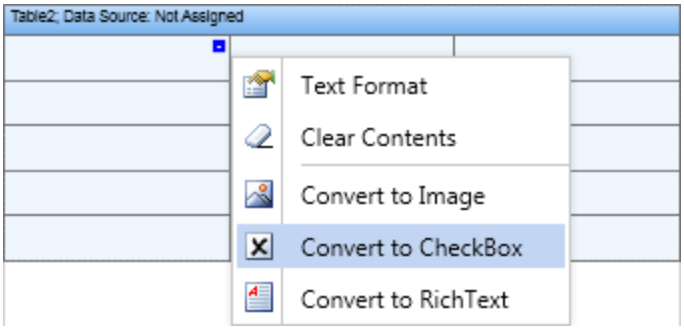
There are different types of cells can be placed In the Table component. They are a text, an image, a check, and a rich text.

✓ Text is a cell will be output as a text. Cell settings are the same as the settings of a Text component;
✓ Image is a cell will be output as a text.Cell settings are the same as the settings of an Image component;
✓ Check is a cell will be output as a check for Boolean types of data. Cell settings are the same as the settings of a Check component;
✓ Rich text is a cell will be output as a rich text. Cell settings are the same as the settings of a Rich Text component.

The **CellType** property is used to indicate a cell type.




Also it is possible to indicate a cell style by clicking the quick access button of a cell.




Or the context menu of a cell.

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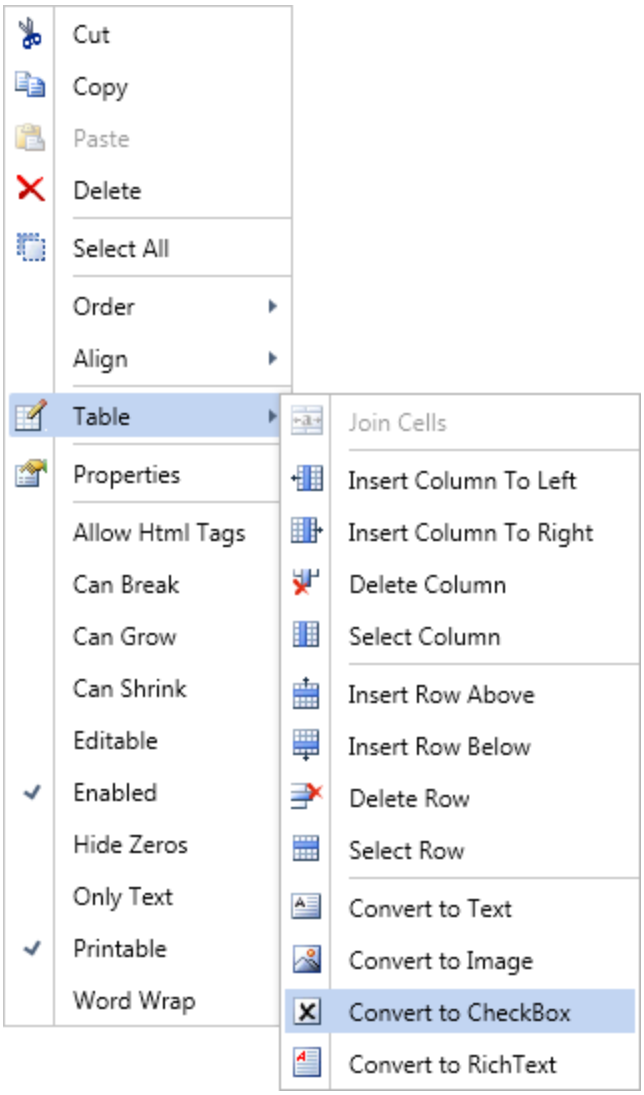
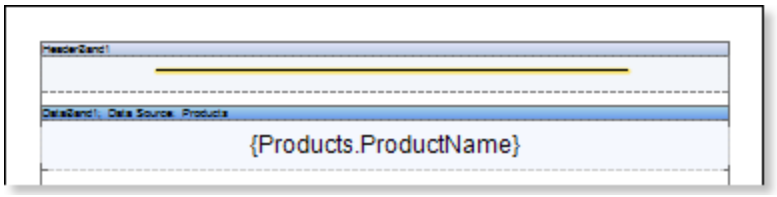



## 5.29 Primitives

Primitives include: **Horizontal Line** and **Shape**. Cross-primitives include: **Vertical Line**, **Rectangle** and **Rounded Rectangle**. **Horizontal line** is a line in the horizontal plane, which start and end points are located on the same component in a report. The picture below shows a report template with a list in which a **Horizontal Line** is located in the **HeaderBand**:




The **Shape** is a report component, which, depending on the type, shows this or that primitive. The

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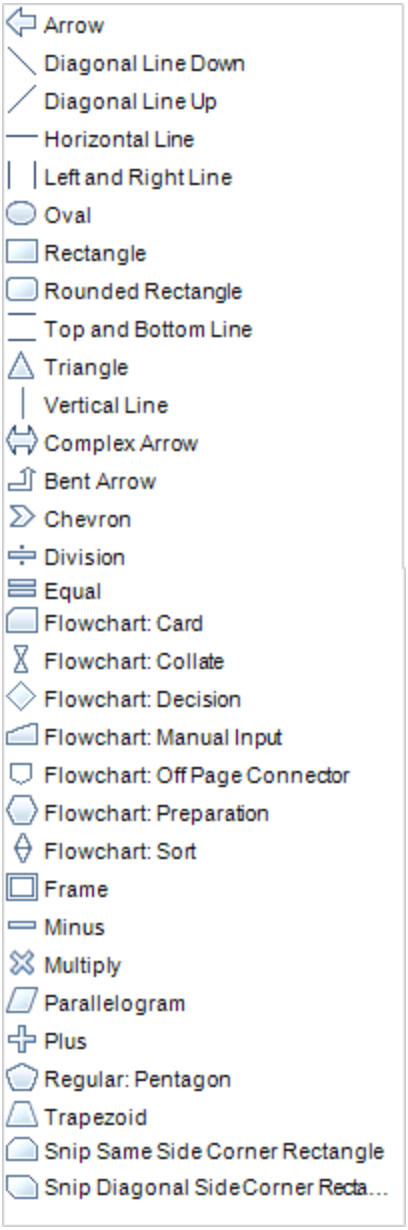
**Shape Type** property is used to specify a primitive type. The picture below shows a list of values of the **Shape Type** property:




## 5.29.1 Cross-Primitives

Cross-primitives include: **Vertical Line**, **Rectangle** and **Rounded Rectangle**. The start and end points of cross-primitives can be placed on different components of a report. When designing a report with cross-primitives the report generator renders start and end points of a vertical line, and then, between two points, it renders a vertical line. The picture below shows an example of a report template with a rectangle:

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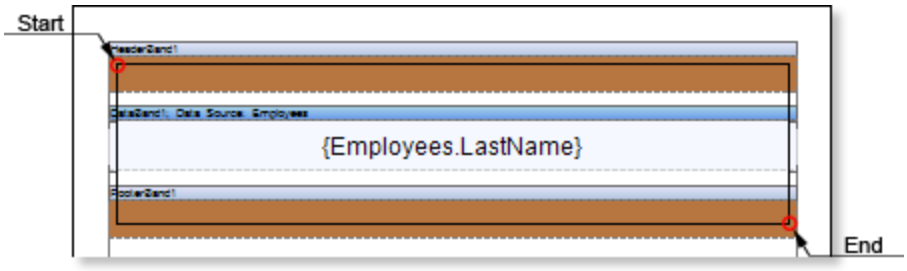
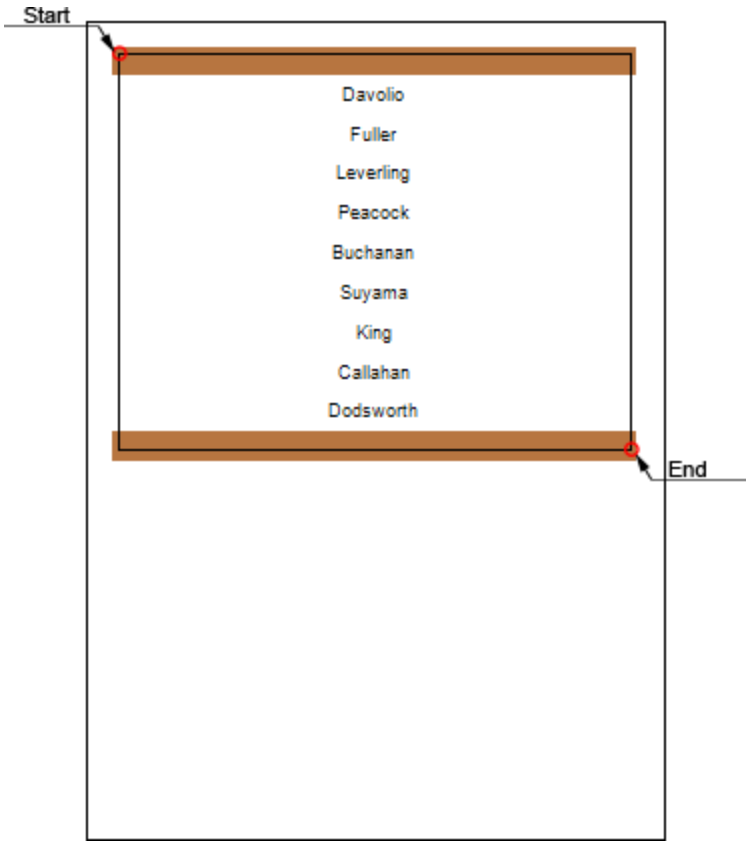



As can be seen in the picture, the start and end points of the **Rectangle** component are located on different bands: the start point is located in the **HeaderBand**, and the end point is in the **FooterBand**. When rendering the report, the report generator will render start and end points of the rectangle, and then it will render rectangle sides. The picture below shows an example of the rendered report pages with the **Rectangle** cross-primitive:




## 5.30 Sub-Reports

The **Sub-Report** is a report component that can be placed on a band, page, panel or any other component that can be a container for the sub-report. When placing this component, the reporting tool will add nested page into the report and bind it with the **Sub-Report**. When rendering a report, the reporting tool will build all sub-reports and place them in this container. On the nested page a report that has any structure can be created. Also the **Sub-Report** component can be placed on the

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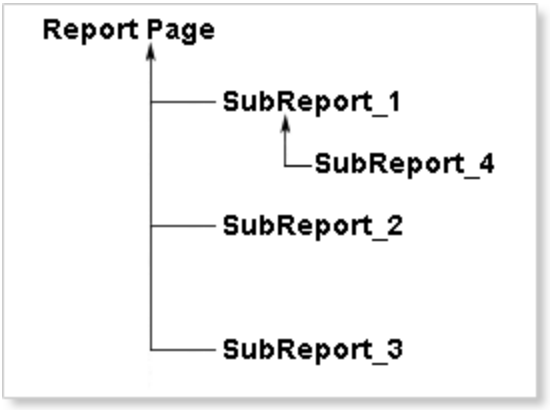
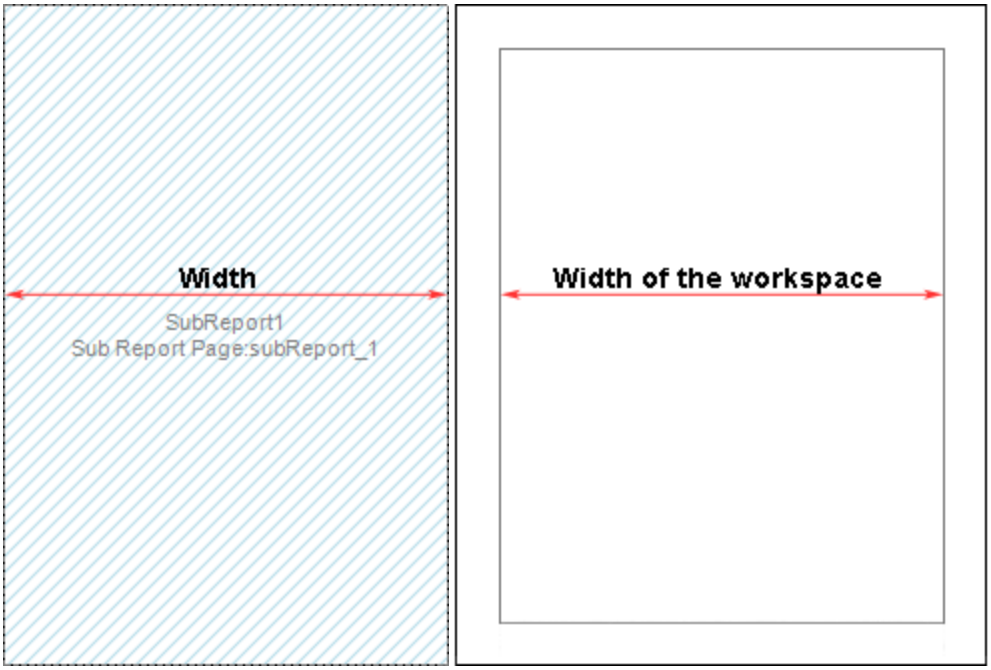
nested page, so the nested page of the second level will be created. In other words it is possible to create complex hierarchy in a report. The picture below shows the hierarchy of a sub-report:




As seen on the picture above, **SubReport_1**, **SubReport_2**, **SubReport_3** components are placed on the report page and the **SubReport_4** component is placed on the sub-report page of the **SubReport_1** component. So the page of the **SubReport_4** component is the nested page of the second level.

### 5.30.1 Sub-Reports on Page

The **Sub-Report** component can be placed on any part of a page. The width of the nested page depends on the width of the **Sub-Report** component. The picture below shows a sample of the **Sub-Report** component and nested page:




The **CanGrow** property of the **Sub-Report** component is always set to **true** but, when placing this

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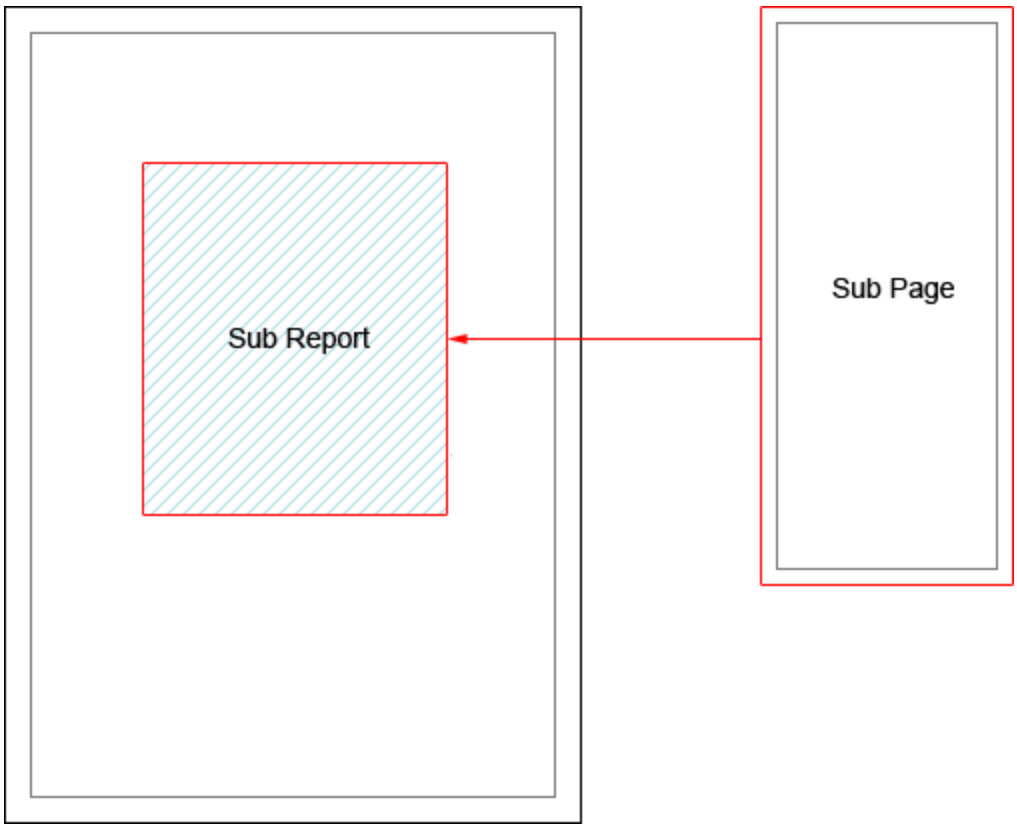
component, it cannot be grown by height. So you should take into the account the height of the component on the nested page: it should not be higher than the **Sub-Report** component. When rendering a report, the **Sub-Report** component, placed on the report template, will be rendered as the report page item. When rendering a report, the reporting tool will render all sub-reports and place them in the container of the **Sub-Report** component. The picture below shows a sample of placing the nested page in a report:




## 5.30.2 Sub-Reports on Data Band

The **Sub-Report** component can be placed on the **DataBand**. When rendering a report, the **Sub-Report** will be rendered as the item of the **DataBand**, so this component will be printed in each **DataBand**. The picture below shows the scheme of rendering of the sub-report when placing the **Sub-Report** component in the **DataBand**:

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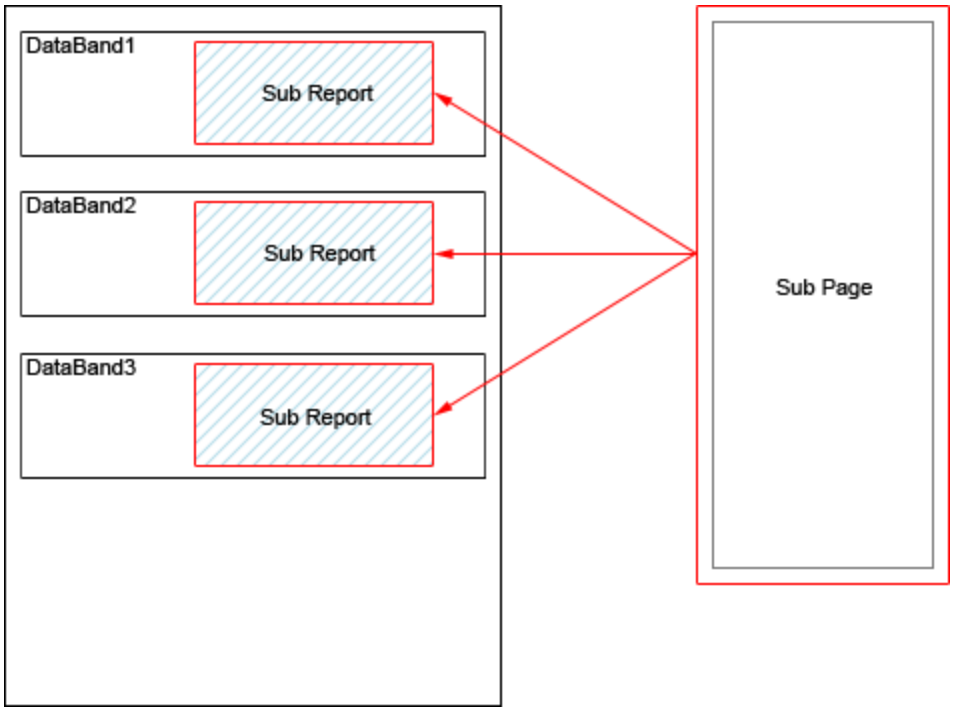


In this case the height of the component on the sub-report page of a report will be higher than the height of the **Sub-Report** component. So the **Sub Report** component is placed in the **DataBand** and rendered as the item of the **DataBand**, and, in this case, the **CanGrow** property works and the component can grow by height.

### 5.30.3 Master-Detail Reports and Sub-Reports

It is possible to design the **Master-Detail** report using the **Sub-Report** component. Put **DataBand1** on a page of a report template. Insert **Sub-Report** component into this band. Put **DataBand2** on the sub-report page. The picture below shows the report template:

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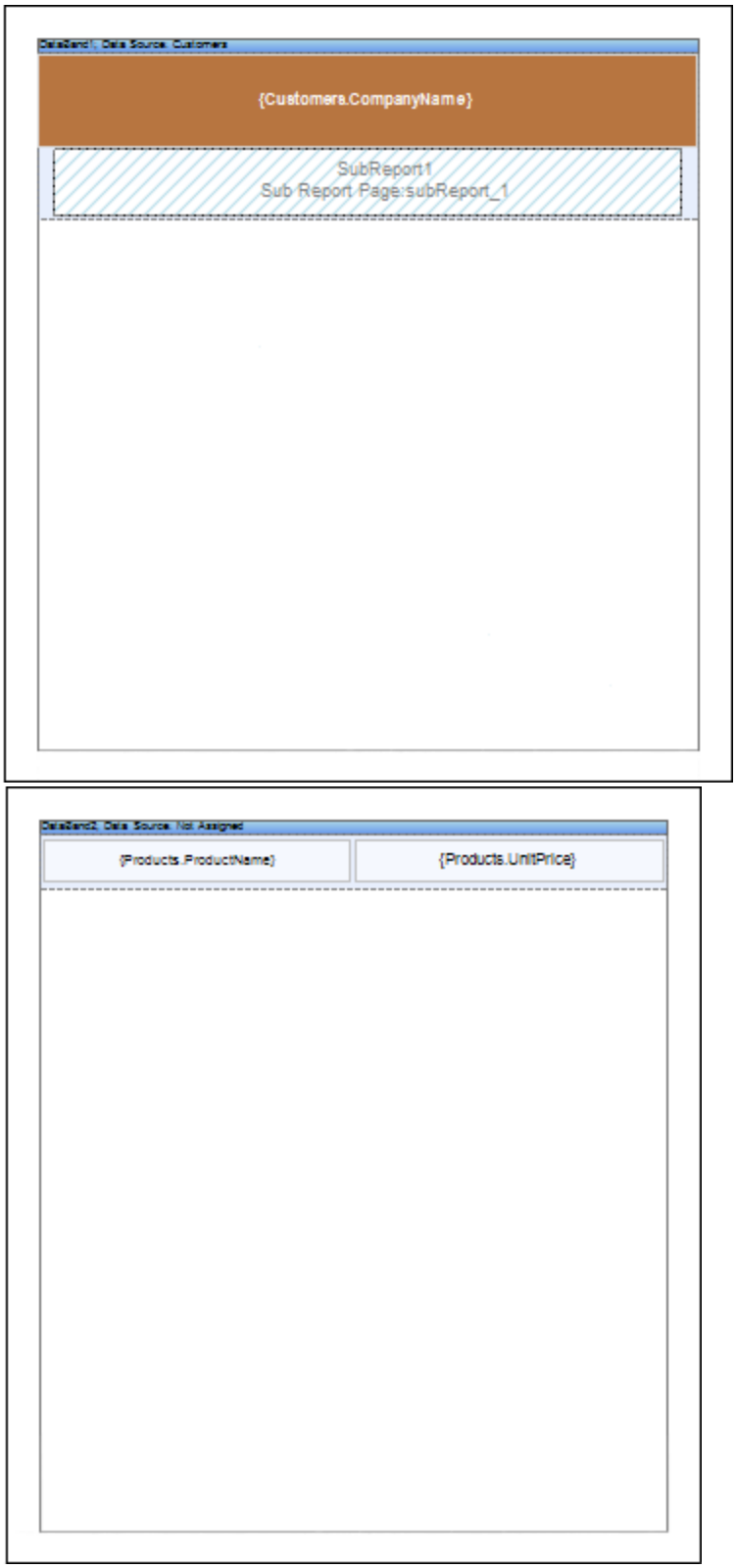


In this example the **DataBand1** can be defined as the **Master** for the **DataBand2** that is placed in the sub-report page of a report. For this you need to choose the **Master** component in the data settings.

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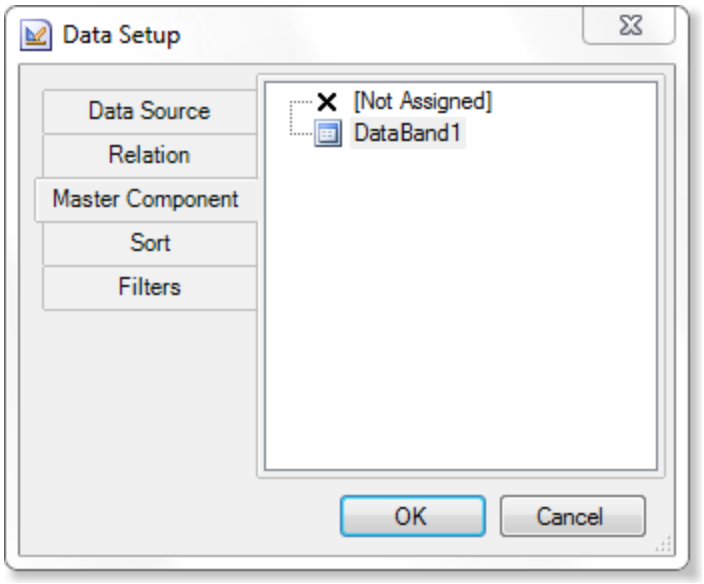
The picture below shows the sample of the **Data Setup** window:




As you can see, the **DataBand1**, that is placed on the report page, is the **Master** in the **Master-Detail** report. If several **DataBands** are placed on the sub-report page then, when creating the **Master-Detail** report, the **Master** is either the **DataBand** in what the **Sub-Report** is placed or any other **DataBand**, placed in the sub-report page.

### 5.30.4 Side-by-Side Reports and Sub-Reports

You can use the **Sub-Report** component to create the **Side-by-side** report. The **Side-by-side** report consists of independent lists of data, located side by side. The picture below shows an example of a **Side-by-side** report template with the location of the **Sub-Report** component on on a page of the report template:

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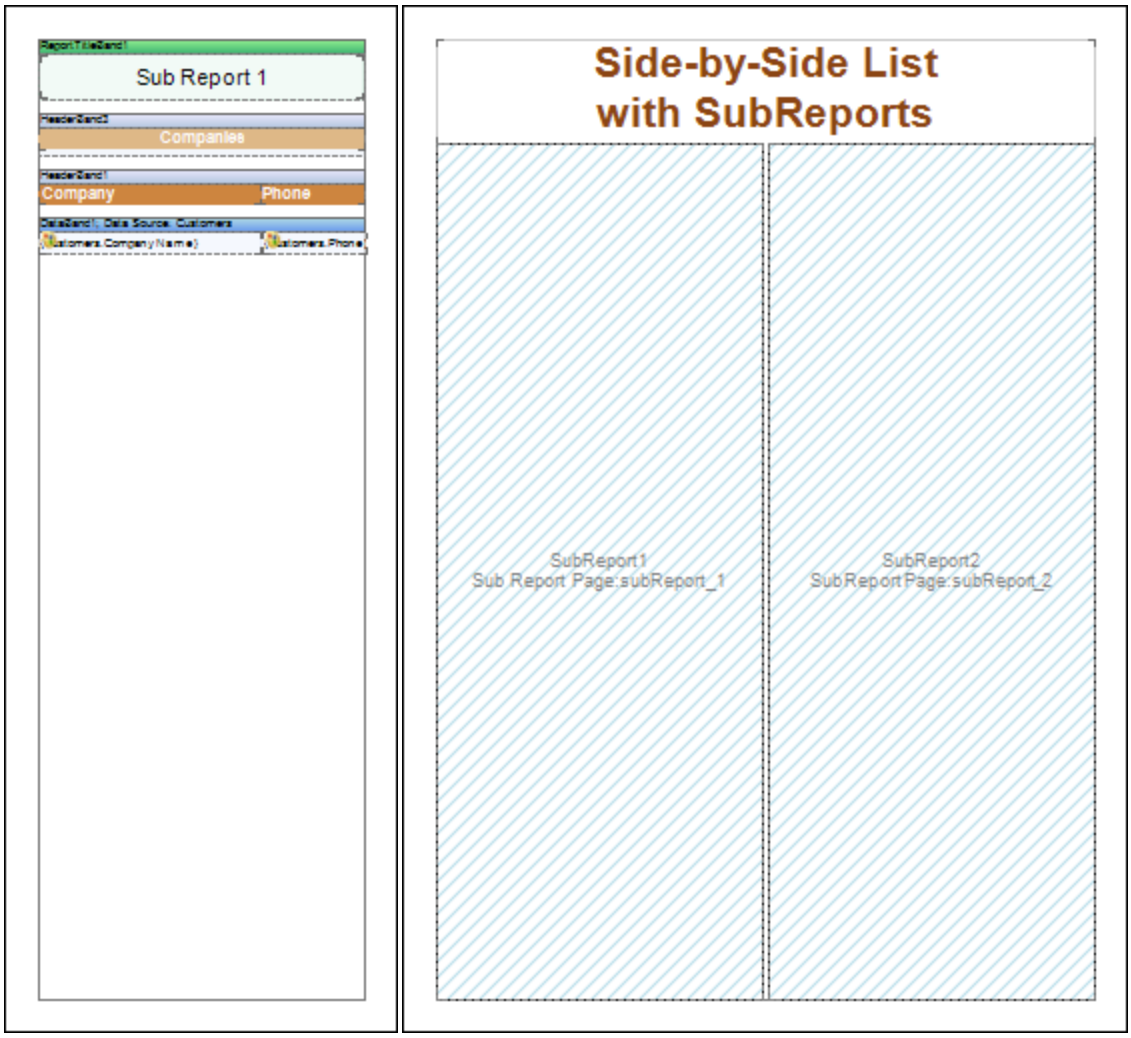


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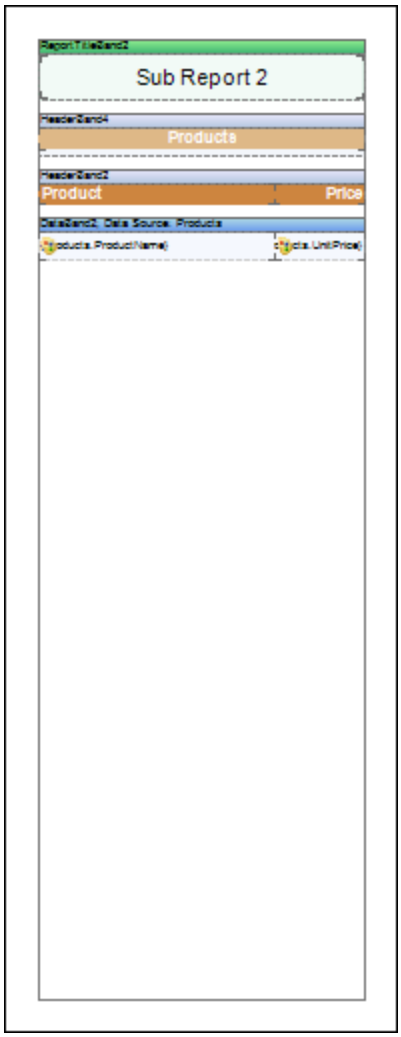


As you can see on the picture above, when rendering a report, independent data lists will be displayed, i.e. two **Side-by-side** sub-reports will be built. Thus it is possible to build more complex reports: for example, put three **Sub-Report** components together side by side, and then, when rendering a report, three independent data lists, i.e. three **Side-by-side** sub-reports will be output. You should also remember that the **Sub-Report** can be placed in the **DataBand**. Accordingly, put two or more **Sub-Report** components to build **Side-by-side** reports in one **DataBand**. The picture below shows an example of the **Side-by-side** report templates with the location of the **Sub-Report** component in the **DataBand**:

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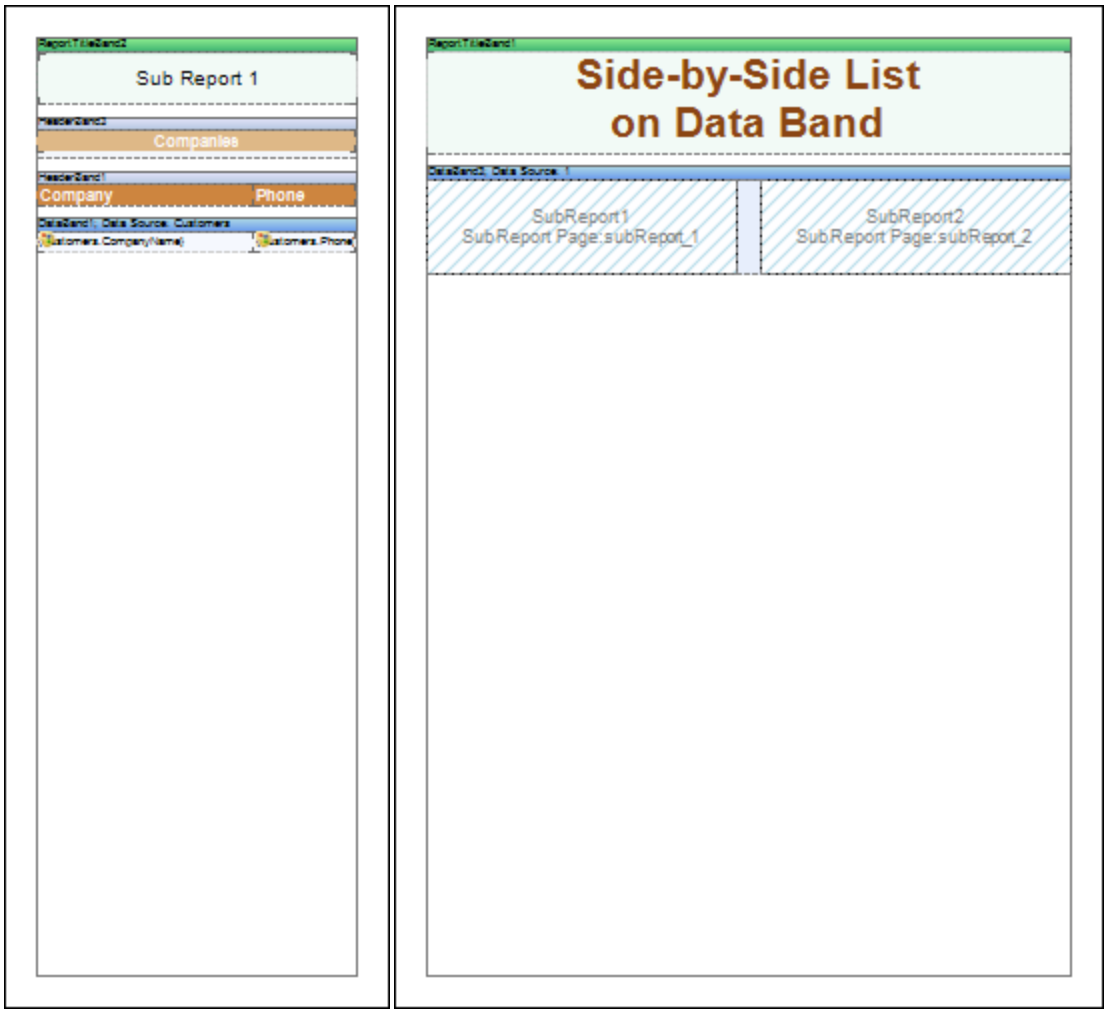


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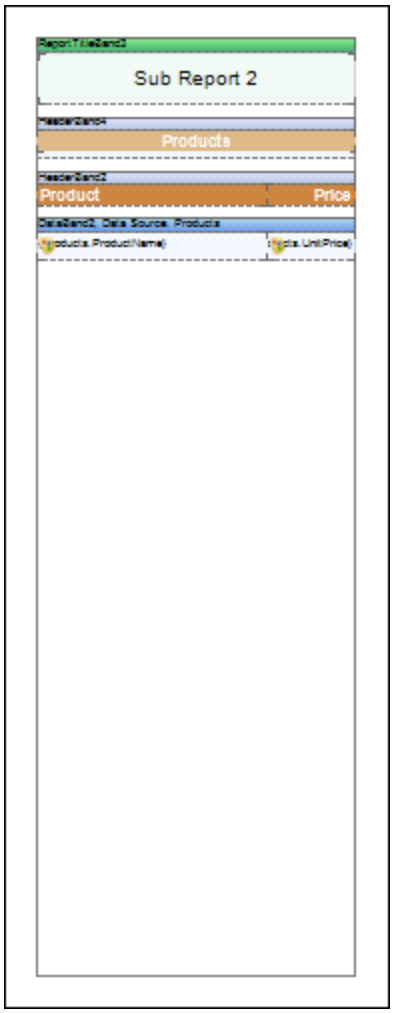


## 5.31 Totals

In many reports it is necessary to calculate totals: totals by a page, number of rows in a group, average value etc. For all these calculations it is possible to use aggregate functions. Using aggregate functions, it is possible to calculate a sum, number of rows, average values, maximal values, minimal values, to get first values from the list, to get last values from the list etc. The ranges of rows can be all rows of a list, rows on one page, rows from one group, rows from one container etc.

Stimulsoft Reports supports the following aggregate functions:

- **Avg** - returns the average value of the specified expression;
- **Count** - returns the number of rows in the specified range;
- **CountDistinct** - returns the number of unique rows in the specified range;
- **First** - returns the first value in the specified range;
- **Last** - returns the last value in the specified range;
- **Max** - returns the maximal value of the specified expression;
- **Median** - returns the median of all values of the specified range;
- **Min** - returns the minimal value of the specified expression;

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- **Mode -** returns the greatest value of the specified range;
- **Sum** - returns the sum of the specified expression.

## 5.31.1 Calculation of Totals Associated with Bands

### 5.31.1.1 Totals Output in Any Part of Report

Usually, components in what text expressions the aggregate function call is specified, must be put on the total band or on the **Data** band. If it is required to output the total on the **Header** band then it is either impossible or possible using the script. But in Stimulsoft Reports the component with the aggregate function can be placed in any kind of a band.

Also you can put an aggregate function on a page and other pages. For example, you can calculate the sum of values in the list and show it in the header of the list. Also you may calculate the number of strings and show its value in the beginning of a page. At that there is a restriction. You should specify to which the Data band does this aggregate function belong. For this you should specify the Data band as a function argument. For example:

this expression will return the number of strings of the DataBand1 band.

**Notice:** Components with aggregate functions can be put in any part of a report.

Also it is possible to put an aggregate function on a page and other pages. For example, it is possible to calculate the sum of values by the list and show it in the header of the list. Also it is possible to calculate the number of rows and show its value in the beginning of a page. But there is a restriction. It is necessary to specify to which **Data** band does this aggregate function belong. For this, it is necessary to specify the **Data** band as a function argument. For example:

```
{Sum(DataBand1, Products. UnitsInStock)}
```

this expression will return the sum of values of the **Products.UnitsInStock** column for every row of the **DataBand1**. Considering the **Count** aggregate function:

```
{Count(DataBand1)}
```

this expression will return the number of rows of the **DataBand1**.

### 5.31.1.2 Type of Result of Total Function

By default, all total functions return the value of the **Decimal** type (except **Count** and **CountDistinct**). In addition Stimulsoft Reports allows making calculations using two types of data: **Double** and **Int64**. If you want the aggregate function to return the result of calculation using the **Double** type of data, write

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the Latin letter **D** in uppercase before the function name. For calculations using the **Int64** type it is necessary to add Latin letter **I** in uppercase. For example, for calculation sum using the **Int64** type it is necessary to write:

```
SumI
```

For the **Double** type:

```
SumD
```

For the **Decimal** type:

```
Sum
```

It allows preventing losses in totals calculation.

| Aggregate function spelling | Type of return value |
|---|---|
| Sum | Decimal |
| SumD | Double |
| SumI | Int64 |

I, D letters can be added to any functions except for: **Count** and **CountDistinct**. These functions always return the Int64 type .

**Notice:** The Count and CountDistinct functions are always calculated using the Int64 type.

### 5.31.1.3 Expression with Aggregate Functions

To sum up all values of one column it is enough to write the following text expression of a component:

```
{Sum(DataSource.Column)}
```

Also it is acceptable to use complex expressions:

```
{100 + Sum(DataSource.Column) * 2}
```

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For example, it is necessary to output number of rows and the sum of values. For this, it is necessary to add the **Footer** band to the report. Put two **Text** components on this band. Write in the first component the following expression:

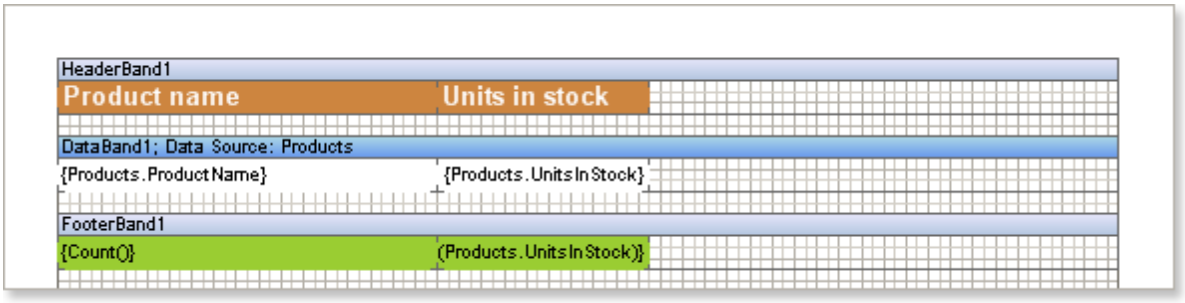
```
{Count()}
```

in this component the number of rows will be output.

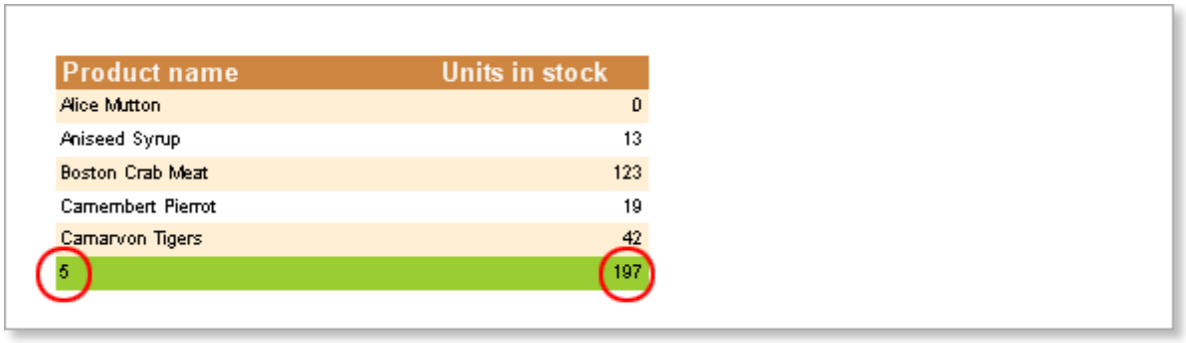
Write in the second component the following expression:

```
{Sum(Products.UnitsInStock)}
```

in this component the sum of values of the **UnitsInStock** column will be output.




As one can see from the sample, there is no need in additional arguments for calculation of number of rows of the **Count** function. One argument was specified to the **Sum** function. It is the expression that should be summed up. In other words the report generator specified to which **Data** band all these aggregate functions belong to and how many times these functions must be called.




This occurred because text components, in which aggregate functions was used, were placed on the total **Footer** band. This band belongs to a **Data** band. This enables the report generator to bind the aggregate functions and the **Data** band automatically.

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There are several types of total bands in Stimulsoft Reports. They are as follow:

- **ReportSummaryBand** - this band is used to output totals of the whole report;
- **PageFooterBand** - this band is used to output totals by a page;
- **FooterBand** - this band is used to output totals by a list;
- **GroupFooterBand** - this band is used to output totals by a group.

Placing components and aggregate functions together allows the report generator to indicate to which **Data** band do these aggregate functions belong. Also, in addition, it is possible put the component with aggregate function on the **Data** band. In this case there will be an output of the result of an aggregate function calculation of all strings.

**Notice:** In most cases Stimulsoft Reports automatically binds the aggregate function and the Data band together.

#### 5.31.1.4 Calculating Totals by Page

It is very simple to calculate totals of a container or a page. For this it is necessary to add before the name of an aggregate function the Latin letter **c** in lowercase. For example:

```
{cCount(DataBand1)}
```

- this expression will return the number of rows of one page.

**Notice:** A page is a container too. Therefore, calculation of totals of a page goes the same way as calculation of totals of a container.

When calculation of totals of a panel or of a page it is necessary specify the **Data** band by what the aggregate function will be calculated. It is necessary because more than one **Data** band can be placed on one page.

**Notice:** For calculation of an aggregate function by a panel it is enough to add Latin letter c before the name of this aggregate function.

Any number of aggregate functions can be used on one page or a panel. Stimulsoft Reports has no limit in it. It is possible to combine totals of a page with a condition. For example:

```
{CountIf(DataBand1, Products.UnitsInStock = 0)}
```

- the expression will return the number of elements equal zero on this page.

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### 5.31.1.5 Calculating Totals by Column

Using Stimulsoft Reports it is possible to calculate total by a column. Just write **col** (from **column**) in lowercase before the aggregate function name. For example:

```
{colCount()}
```

the expression will return the number of rows in one column.

22.Familia Arquibaldo (11) 555-9857 66.Rattlesnake Canyon Grocery (505) 555-5939
23.FISSA Fabrica Inter. Salchichas SA. (91) 555 94 44 67.Reggiani Caseifici 0522-556721
24.Folies gourmandes 20.16.10.16 68.Ricardo Adocicados (21) 555-3412
25.Folk och fä HB 0695-34 67 21 69.Richter Supermarkt 0897-034214
26.France restauration 40.32.21.21 70.Romero y tomillo (91) 745 6200
27.Franchi S.p.A. 011-4988260 71.Santé Gourmet 07-98 92 35
28.Frankenversand 089-0877310 72.Save-a-lot Markets (208) 555-8097
29.Furia Bacalhaus Frutos do Mar (1) 354-2534 73.Seven Seas Imports (171) 555-1717
30.Gaterialdel gastronomo (93) 203 4560 74.Simons bistro 31 12 34 56
31.Godos Cocina Típica (95) 555 82 82 75.Spécialités du monde (1) 47.55.60.10
32.Gourmet Lanchonetes (11) 555-9482 76.Split Rail Beer & Ale (307) 555-4680
33.Great Lakes Food Market (503) 555-7555 77.Suprêmes délices (071) 23 67 22 20
34.GROSELLA-Restaurante (2) 283-2951 78.The Big Cheese (503) 555-3612
35.Hanari Carnes (21) 555-0091 79.The Cracker Box (406) 555-5834
36.HILARION-Abastos (5) 555-1340 80.Toms Spezialitäten 0251-031259
37.Hungry Coyote Import Store (503) 555-6874 81.Tortuga Restaurante (5) 555-2933
38.Hungry Owl All-Night Grocers 2967 542 82.Tradição Hipermercados (11) 555-2167
39.Island Trading (198) 555-8888 83.Trail's Head Gourmet Provisioners (206) 555-8257
40.Königlich Essen 0555-09876 84.Vaffeljernet 86 21 32 43
41.La corne d'abondance 30.59.84.10 85.Victuailles en stock 78.32.54.86
42.Lamaisond'Asie 61.77.61.10 86.Vins et alcools Chevalier 26.47.15.10
43.Laughing Bacchus Wine Cellars (604) 555-3392 87.Wartian Herkku 981-443655
44.Lazy K Kountry Store (509) 555-7969 88.Wellington Importados (14) 555-8122
44
44
Company Phone
89.White Clover Markets (206) 555-4112
90.Wilman Kala 90-224 8858
91.Wolski Zajazd (26) 642-7012
3

There is one restriction in calculation of totals by a column in Stimulsoft Reports. Totals can only be calculated by columns on a page. It is impossible to calculate totals by columns in the **Data** band.

**Important:** Totals can only be calculated by columns on a page. It is impossible to calculate totals by columns in the Data band.

When calculating totals by a column, the text component with aggregate function should be placed on **ColumnHeader**, **ColumnFooter**, **Header** of **Footer** bands.

**Important:** For calculation aggregate functions by column it is enough to add col before the name of an aggregate function.

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It is possible to calculate unlimited number of totals by column. There are no limitations in this case. Also it is possible to combine totals by column with condition. For example:

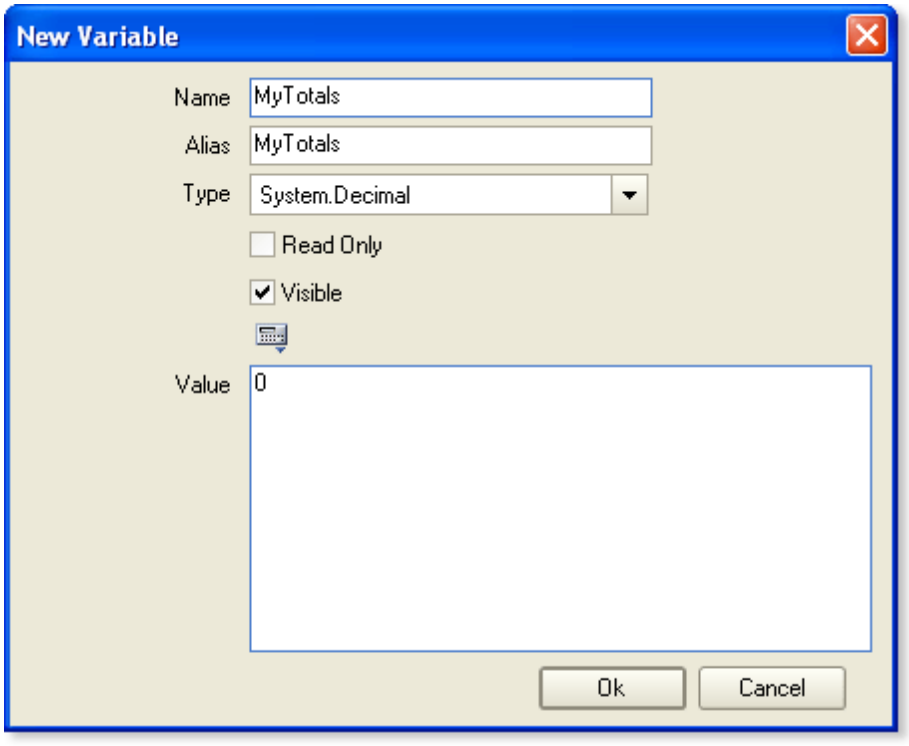
```
{colCountIf(DataBand1, Products.UnitsInStock = 0)}
```

this expression will return the number of rows, which condition is set to **true**, by a column.

### 5.31.1.6 Calculating Totals in Code of Report Events

Using Stimulsoft Reports you may make calculation of aggregate functions in the code of events of a report. This allows calculating aggregate functions with complex logic or condition. Another advantage of Stimulsoft Reports is that, when calculating, you call the value to be calculated from the report code and make changes. If you want to make such a calculation, the variable which stores the value of an aggregate function is required. For this, you should create a new variable in the data dictionary.

**Important:** Using variables from the code to store the result of an aggregate function calculation is not allowed. It is necessary to use variables created in the dictionary.




Here you specify the type of a variable, for example **Decimal**, and the initial value is zero. Then in the **Render** event of the **Data** band you should set the code for a variable increment. For example, if you want to calculate the sum of variables of the **Products.ItemsInStock** field then the code will be as follows:

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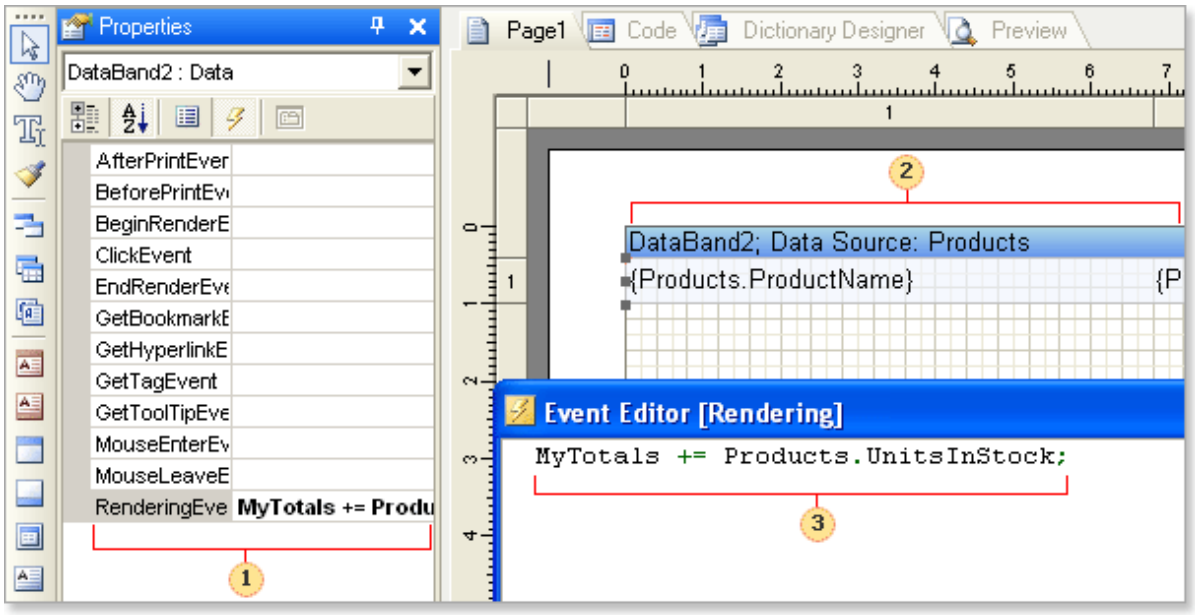
```
MyTotals += Products.ItemsInStock;
```




1. The **RenderingEvent** event
2. The **Data** band in what the **RenderingEvent** event calculation will be made
3. The code for calculating the sum

For calling the variable, that contains the value of a total, write in the following in the text expression:

```
{MyTotal}
```

If, after you have written the text expression, you run the report rendering. Then, when the report rendering will reach the component which contains the expression with the total variable, then there will be an output of this variable. Therefore, you should specify to the report generator that the component output must be done right after the whole report rendering - when the variable will be calculated completely. For this, you must set the **ProcessAtEnd** property of the text component to **true**.

**Notice:** Expressions of text components which the ProcessAtEnd properties are set to true are always calculated at the end of the report rendering.

As was written before the total will be calculated and shown in the proper part of a report.

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### 5.31.1.7 Invisible Bands

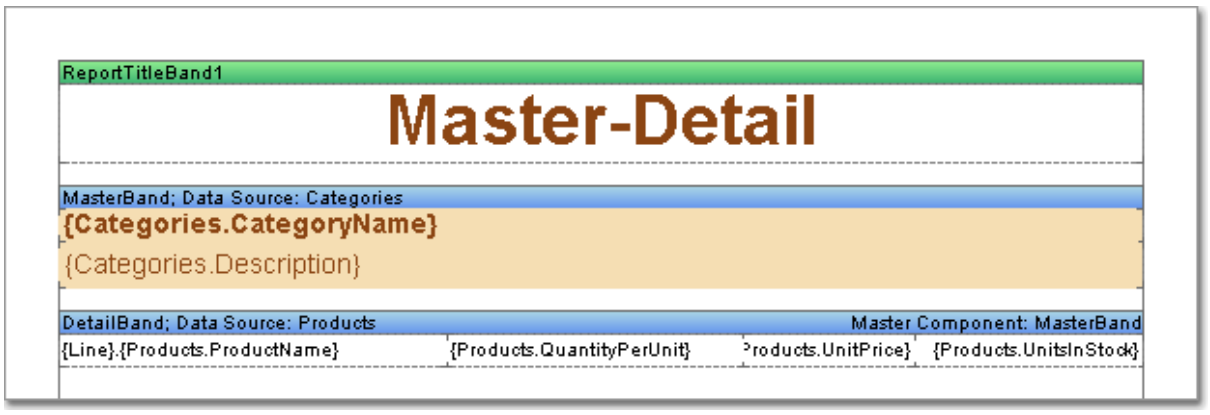
Many reports use invisible bands by a certain condition. By default, the report generator will not consider disabled **Data** bands. But it is necessary, when calculating totals, also to consider invisible **Data** bands then it is necessary to set the **CalcInvisible** property of the **Data** band to **true**. In this case only invisible **Data** bands will be output and, when calculating aggregate functions, all rows will be calculated.

### 5.31.1.8 Totals and Automatic Change of Size

There is one feature when using automatic change of a size of a component that is responsible for the calculation of totals output. As a rule in the moment when the component size indication is in process, the result of the aggregate function is unknown. Therefore, the component cannot correct its size considering the result of an aggregate function. This feature should be considered when reports rendering.

### 5.31.1.9 Calculating Totals in Master-Detail Reports

When building the **Master-Detail** reports you may meet the problem with calculation of totals in hierarchical reports. What is it? Suppose, you have a list of products which is output by categories. The report is built using **Master-Detail** relations. In other words we have a certain number of master strings (categories) and a certain number of detail strings (products).

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# Master-Detail

**Beverages**

Soft drinks, coffees, teas, beers, and ales

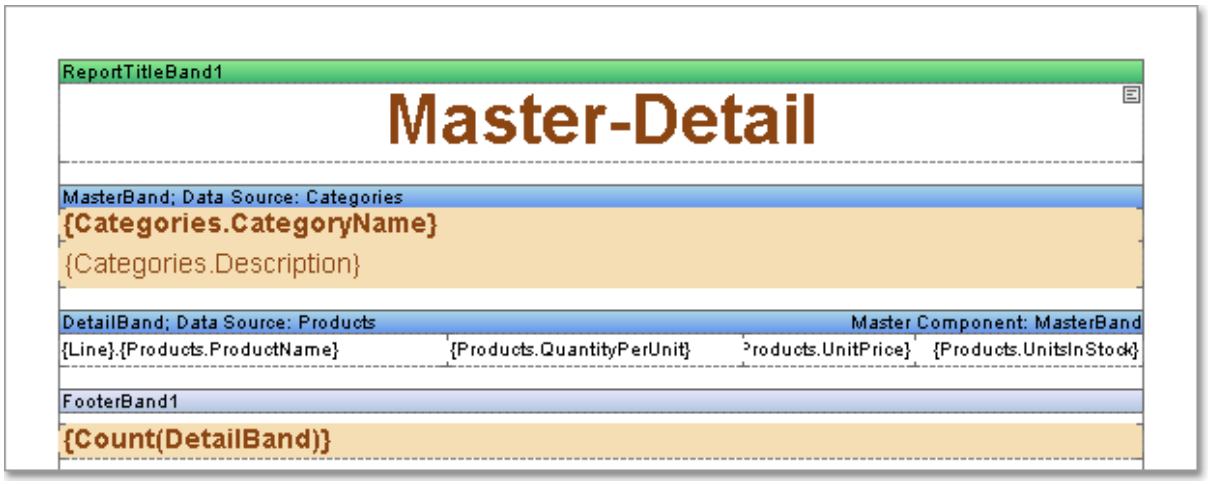
| | | | |
|---|---|---|---|
| 1.Chai | 10 boxes x 20 bags | 18,00p. | 39,00 |
| 2.Chang | 24 - 12 oz bottles | 19,00p. | 17,00 |
| 3.Guaraná Fantástica | 12 - 355 ml cans | 4,50p. | 20,00 |
| 4.Sasquatch Ale | 24 - 12 oz bottles | 14,00p. | 111,00 |
| 5.Steeleye Stout | 24 - 12 oz bottles | 18,00p. | 20,00 |
| 6.Côte de Blaye | 12 - 75 cl bottles | 263,50p. | 17,00 |
| 7.Chartreuse verte | 750 cc per bottle | 18,00p. | 69,00 |
| 8.Ipoh Coffee | 16 - 500 g tins | 46,00p. | 17,00 |
| 9.Laughing Lumberjack Lager | 24 - 12 oz bottles | 14,00p. | 52,00 |
| 10.Outback Lager | 24 - 355 ml bottles | 15,00p. | 15,00 |
| 11.Rhönbräu Klosterbier | 24 - 0.5 l bottles | 7,75p. | 125,00 |
| 12.Lakkalikööri | 500 ml | 18,00p. | 57,00 |

**Condiments**

Sweet and savory sauces, relishes, spreads, and seasonings

| | | | |
|---|---|---|---|
| 1.Aniseed Syrup | 12 - 550 ml bottles | 10,00p. | 13,00 |

So we need to count how many products are output in the report. If we add the **FooterBand** with the aggregate function to the **Detail** band, then we will get the total by each group.

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# Master-Detail

**Beverages**

Soft drinks, coffees, teas, beers, and ales

| | | | |
|---|---|---|---|
| 1.Chai | 10 boxes x 20 bags | 18,00p. | 39,00 |
| 2.Chang | 24 - 12 oz bottles | 19,00p. | 17,00 |
| 3.Guaraná Fantástica | 12 - 355 ml cans | 4,50p. | 20,00 |
| 4.Sasquatch Ale | 24 - 12 oz bottles | 14,00p. | 111,00 |
| 5.Steeleye Stout | 24 - 12 oz bottles | 18,00p. | 20,00 |
| 6.Côte de Blaye | 12 - 75 cl bottles | 263,50p. | 17,00 |
| 7.Chartreuse verte | 750 cc per bottle | 18,00p. | 69,00 |
| 8.Ipoh Coffee | 16 - 500 g tins | 46,00p. | 17,00 |
| 9.Laughing Lumberjack Lager | 24 - 12 oz bottles | 14,00p. | 52,00 |
| 10.Outback Lager | 24 - 355 ml bottles | 15,00p. | 15,00 |
| 11.Rhönbräu Klosterbier | 24 - 0.5 l bottles | 7,75p. | 125,00 |
| 12.Lakkalikööri | 500 ml | 18,00p. | 57,00 |

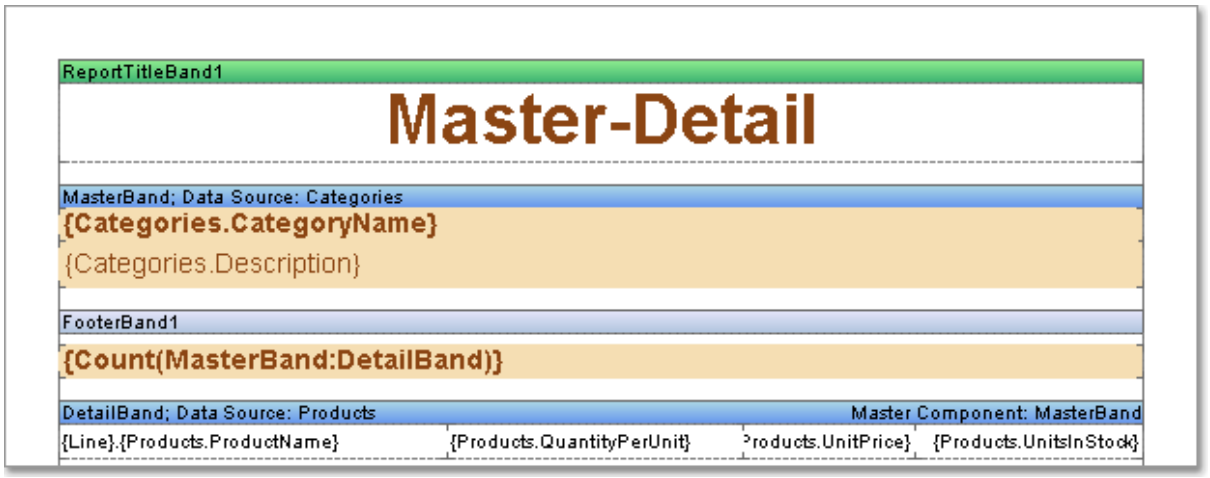
**12**

**Condiments**

Sweet and savory sauces, relishes, spreads, and seasonings

| | | | |
|---|---|---|---|
| 1.Aniseed Syrup | 12 - 550 ml bottles | 10,00p. | 13,00 |

If we add the **FooterBand** to the **MasterBand** then we will get the number of categories. In this case it is possible to use the calculation of totals. For this purpose you need to specify names of both **DataBands** in the aggregate function. In our case: **Count(MasterBand: DetailBand)**.

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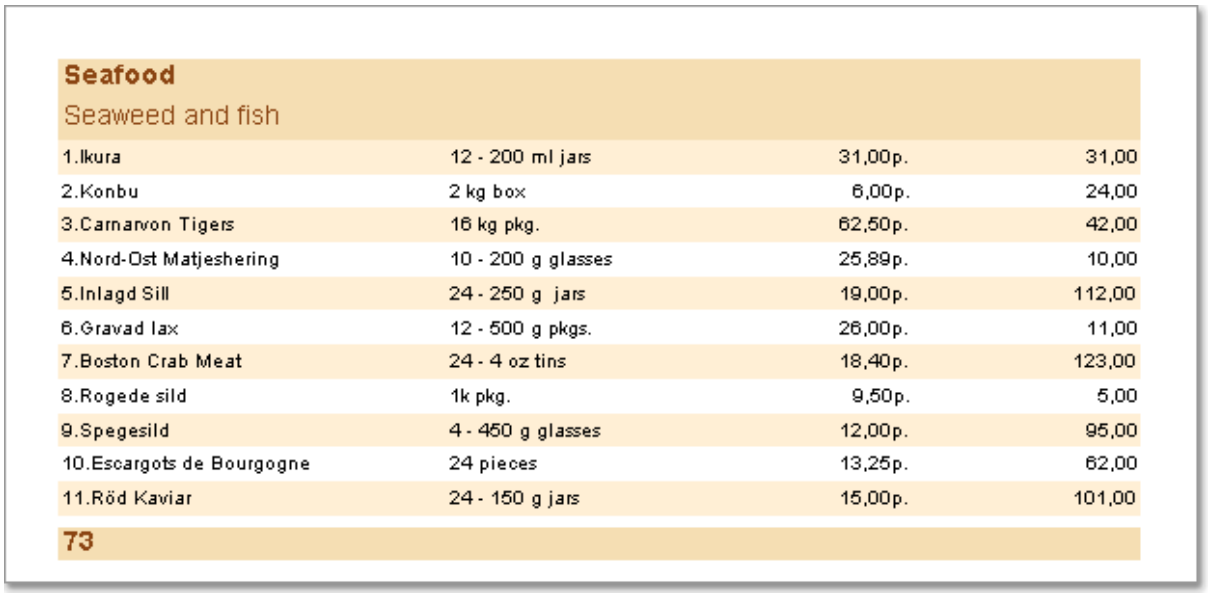

**Seafood**

Seaweed and fish

| | | | |
|---|---|---|---|
| 1.Ikura | 12 - 200 ml jars | 31,00p. | 31,00 |
| 2.Konbu | 2 kg box | 6,00p. | 24,00 |
| 3.Carnarvon Tigers | 16 kg pkg. | 62,50p. | 42,00 |
| 4.Nord-Ost Matjeshering | 10 - 200 g glasses | 25,89p. | 10,00 |
| 5.Inlagd Sill | 24 - 250 g jars | 19,00p. | 112,00 |
| 6.Gravad lax | 12 - 500 g pkgs. | 26,00p. | 11,00 |
| 7.Boston Crab Meat | 24 - 4 oz tins | 18,40p. | 123,00 |
| 8.Rogede sild | 1k pkg. | 9,50p. | 5,00 |
| 9.Spegesild | 4 - 450 g glasses | 12,00p. | 95,00 |
| 10.Escargots de Bourgogne | 24 pieces | 13,25p. | 62,00 |
| 11.Röd Kaviar | 24 - 150 g jars | 15,00p. | 101,00 |

**73**

The result of the **Count(MasterBand:DetailBand)** function is the number of products by all categories.

#### 5.31.1.10 Syntax of Aggregated Functions

See the aggregate functions syntax by the example of the **Sum** function:

- **Sum(expression)**
- **Sum(band, expression)**
- **SumIf(band, expression, condition)**

- **expression** – an expression for calculation;
- **band** – a name of a band for calculation;
- **condition** – a condition of inclusion of an expression into the calculation.

When an aggregate function by a page or container is calculated, you should write a letter "**c**" first and then the aggregate function name. See the sample:

- **cSum(expression)**
- **cSum(band, expression)**
- **cSumIf(band, expression, condition)**

For calculation of totals of a column you should write **col** first and then the aggregate function name:

- **colSum(expression)**
- **colSum(band, expression)**
- **colSumIf(band, expression, condition)**

The **Count** function has a distinguishing feature from other aggregate functions. It does not have an expression for calculation. Syntax of this function see below:

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- **Count()**
- **CountIf (condition)**
- **Count (band)**
- **CountIf(band, condition)**
- **cCount ()**
- **cCount (band)**
- **cCountIf(band, condition)**
- **colCount ()**
- **colCount (band)**
- **colCountIf(band, condition)**

**Important:** When using **C#** programming language, all aggregate functions should be written considering the case.

#### 5.31.1.11 Totals with Condition

Often it is necessary to calculate totals with condition. For example, it is necessary to sum up all values greater than zero. Stimulsoft Reports allows adding a condition to an aggregate function. When a condition is added to an aggregate function one should add **If** to this aggregate function name and additional argument with condition. For example:

```
{SumIf(Products.UnitsInStock, Products.UnitsInStock > )}
```

this expression will return the sum of elements, and each element should be greater than zero. For the **Count** function:

```
{CountIf(Products.UnitsInStock == 0)}
```

this expression will return the number of elements equal zero. If it is necessary to make calculation using the **Double** type or the **Int64** type, then add the Latin letter **D** or **I**, and them the **If**. For example:

```
{SumDIf(Products.UnitsInStock, Products.UnitsInStock > 0)}
```

### 5.31.2 Calculation of Totals not Associated with Bands

The calculation totals in a report can be done by specifying an expression, for example, **{Sum (DataBand1)}**. These totals are calculated when rendering the report: each time when a single operation with the **DataBand** is done, a single value is calculated. All calculated values makes a total value, which will be displayed. In Stimulsoft Reports calculation of totals can be produced in another way - instantly. You should use the special **Totals** prefix. Calculation of **totals** occurs where the function

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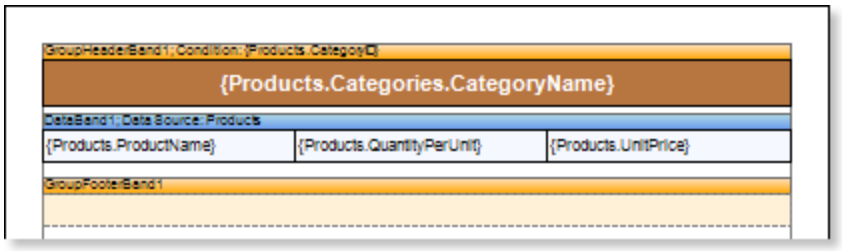
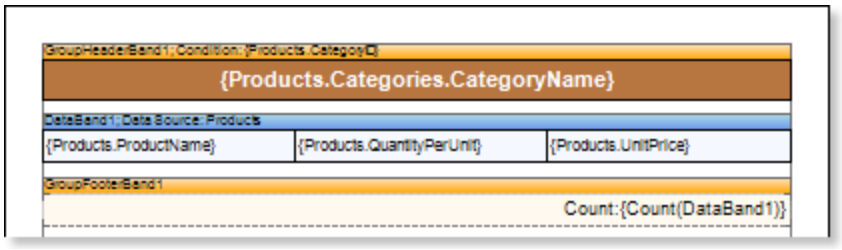
is called, in contrast to standard results, calculations are performed while report rendering. Consider the calculation of totals in a report by the example of a report with grouping. Suppose there is a report with grouping. The picture below shows a report template with the group:




In this example, we calculate the totals using the **Count** function. This function calculates the number of rows. Put the text component in the **GroupFooterBand** band with the following expression: **{Count (DataBand1)}**. The picture below shows a report template with the grouping and the **Count** function in the **GroupFooterBand**:




When rendering a report, the report generator renders a report with groups, and then calculates total values by groups and displays them. The picture below shows a report page displaying the totals by groups:

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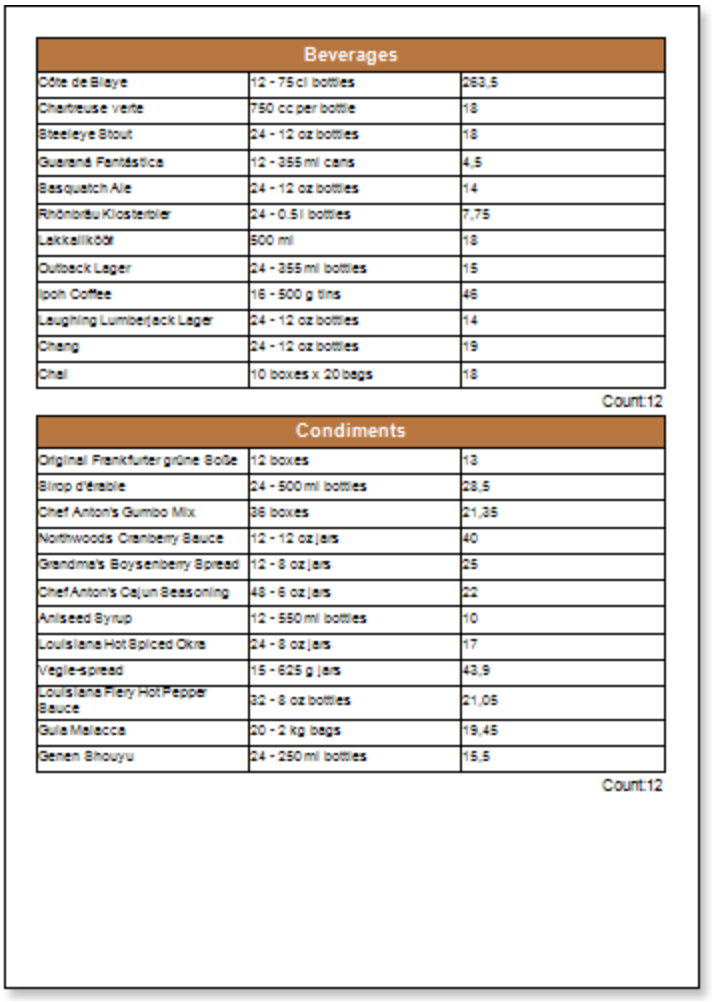


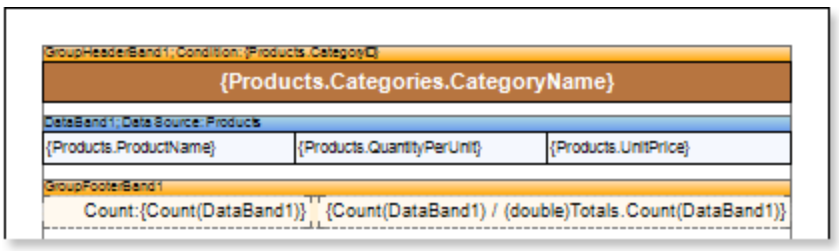
| Beverages | | |
|---|---|---|
| Côte de Blaye | 12 - 75 cl bottles | 263,5 |
| Chartreuse verte | 750 cc per bottle | 18 |
| Steeleye Stout | 24 - 12 oz bottles | 18 |
| Guaraná Fantástica | 12 - 355 ml cans | 4,5 |
| Sasquatch Ale | 24 - 12 oz bottles | 14 |
| Rhönbräu Klosterbier | 24 - 0.5 l bottles | 7,75 |
| Lakkalikööri | 500 ml | 18 |
| Outback Lager | 24 - 355 ml bottles | 15 |
| Ipoh Coffee | 16 - 500 g tins | 46 |
| Laughing Lumberjack Lager | 24 - 12 oz bottles | 14 |
| Chang | 24 - 12 oz bottles | 19 |
| Chai | 10 boxes x 20 bags | 18 |

Count:12

| Condiments | | |
|---|---|---|
| Original Frankfurter grüne Soße | 12 boxes | 13 |
| Sirop d'érable | 24 - 500 ml bottles | 28,5 |
| Chef Anton's Gumbo Mix | 36 boxes | 21,35 |
| Northwoods Cranberry Sauce | 12 - 12 oz jars | 40 |
| Grandma's Boysenberry Spread | 12 - 8 oz jars | 25 |
| Chef Anton's Cajun Seasoning | 48 - 6 oz jars | 22 |
| Aniseed Syrup | 12 - 550 ml bottles | 10 |
| Louisiana Hot Spiced Okra | 24 - 8 oz jars | 17 |
| Vegie-spread | 15 - 625 g jars | 43,9 |
| Louisiana Fiery Hot Pepper Sauce | 32 - 8 oz bottles | 21,05 |
| Gula Malacca | 20 - 2 kg bags | 19,45 |
| Genen Shouyu | 24 - 250 ml bottles | 15,5 |

Count:12

Go back to the report template. Calculate the ratio of entries in the group to entries in the report and show the total in per cent. To do this, add a text component in the **GroupFooterBand** with the following **{Count (DataBand1) / (double) Totals.Count (DataBand1)}** expression, where the **Count (DataBand1)** function will count the number of rows in the group, and the **Totals.Count (DataBand1)** function will calculate the number of rows in the report. To show the total value in per cent, you should to set the **Text Format** property of the text component to **Percentage**. The picture below shows a report template with the added text component in the **GroupFooterBand**:




Click the **Preview** button or invoke the **Viewer**, pressing **F5** or clicking the **Preview** menu item. After rendering all references to data fields will be changed on data form specified fields. Data will be output in consecutive order from the database that was defined for this report. The amount of copies

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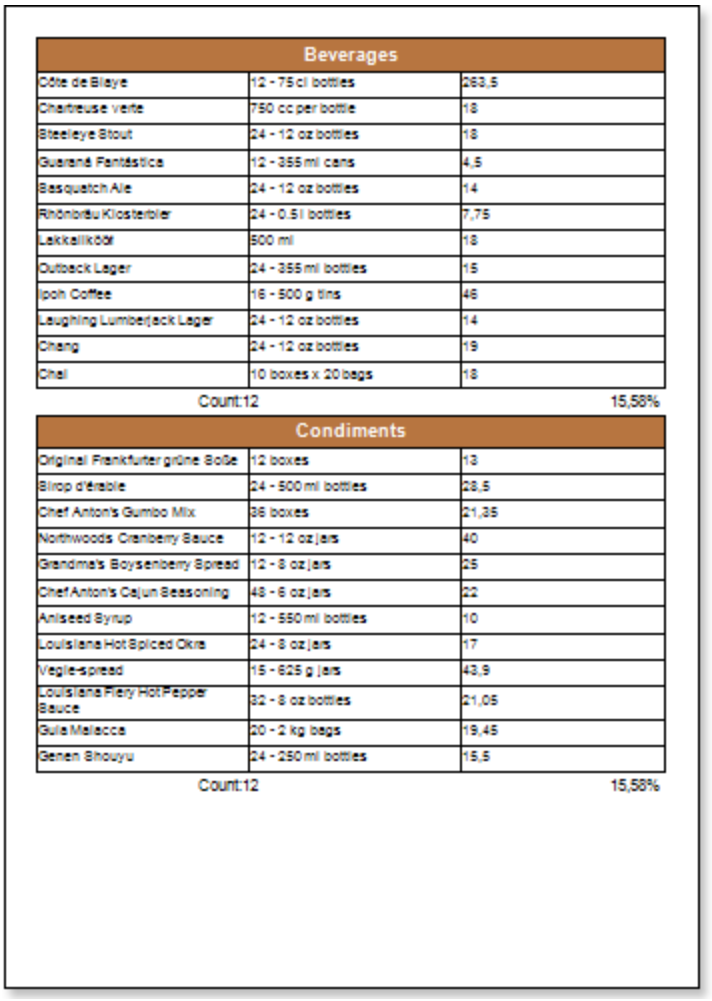
of the **DataBand** in the rendered report will be the same as the amount of data rows in the database. Also the calculation of totals will be done. The picture below shows a rendered report with ratio (in per cent) of entries in the group to entries in the report:



| Beverages | | |
|---|---|---|
| Côte de Blaye | 12 - 75 cl bottles | 263,5 |
| Chartreuse verte | 750 cc per bottle | 18 |
| Steeleye Stout | 24 - 12 oz bottles | 18 |
| Guaraná Fantástica | 12 - 355 ml cans | 4,5 |
| Sasquatch Ale | 24 - 12 oz bottles | 14 |
| Rhönbräu Klosterbier | 24 - 0.5 l bottles | 7,75 |
| Lakkalikööri | 500 ml | 18 |
| Outback Lager | 24 - 355 ml bottles | 15 |
| Ipoh Coffee | 16 - 500 g tins | 46 |
| Laughing Lumberjack Lager | 24 - 12 oz bottles | 14 |
| Chang | 24 - 12 oz bottles | 19 |
| Chai | 10 boxes x 20 bags | 18 |
| Count:12 | | 15,58% |

| Condiments | | |
|---|---|---|
| Original Frankfurter grüne Soße | 12 boxes | 13 |
| Sirop d'érable | 24 - 500 ml bottles | 28,5 |
| Chef Anton's Gumbo Mix | 36 boxes | 21,35 |
| Northwoods Cranberry Sauce | 12 - 12 oz jars | 40 |
| Grandma's Boysenberry Spread | 12 - 8 oz jars | 25 |
| Chef Anton's Cajun Seasoning | 48 - 6 oz jars | 22 |
| Aniseed Syrup | 12 - 550 ml bottles | 10 |
| Louisiana Hot Spiced Okra | 24 - 8 oz jars | 17 |
| Vegie-spread | 15 - 625 g jars | 43,9 |
| Louisiana Fiery Hot Pepper Sauce | 32 - 8 oz bottles | 21,05 |
| Gula Malacca | 20 - 2 kg bags | 19,45 |
| Genen Shouyu | 24 - 250 ml bottles | 15,5 |
| Count:12 | | 15,58% |

## 5.32 Interaction

Stimulsoft Reports has a set of features to render interactive reports. They are bookmarks, hyperlinks, Drill-Down links, dynamic sorting, dynamic collapsing, editing reports in the window of preview. All these features are described in chapters below.

### 5.32.1 Bookmarks

Bookmarks are used to show the structure of a report. Also bookmarks are used to mark the component to make a reference on it using hyperlinks. All components have the **Interaction.Bookmark** property. The expression, specified in this property, is set in the **BookmarkValue** property. Setting occurs when the report rendering. This property is invisible in the **Properties** panel but it can be called

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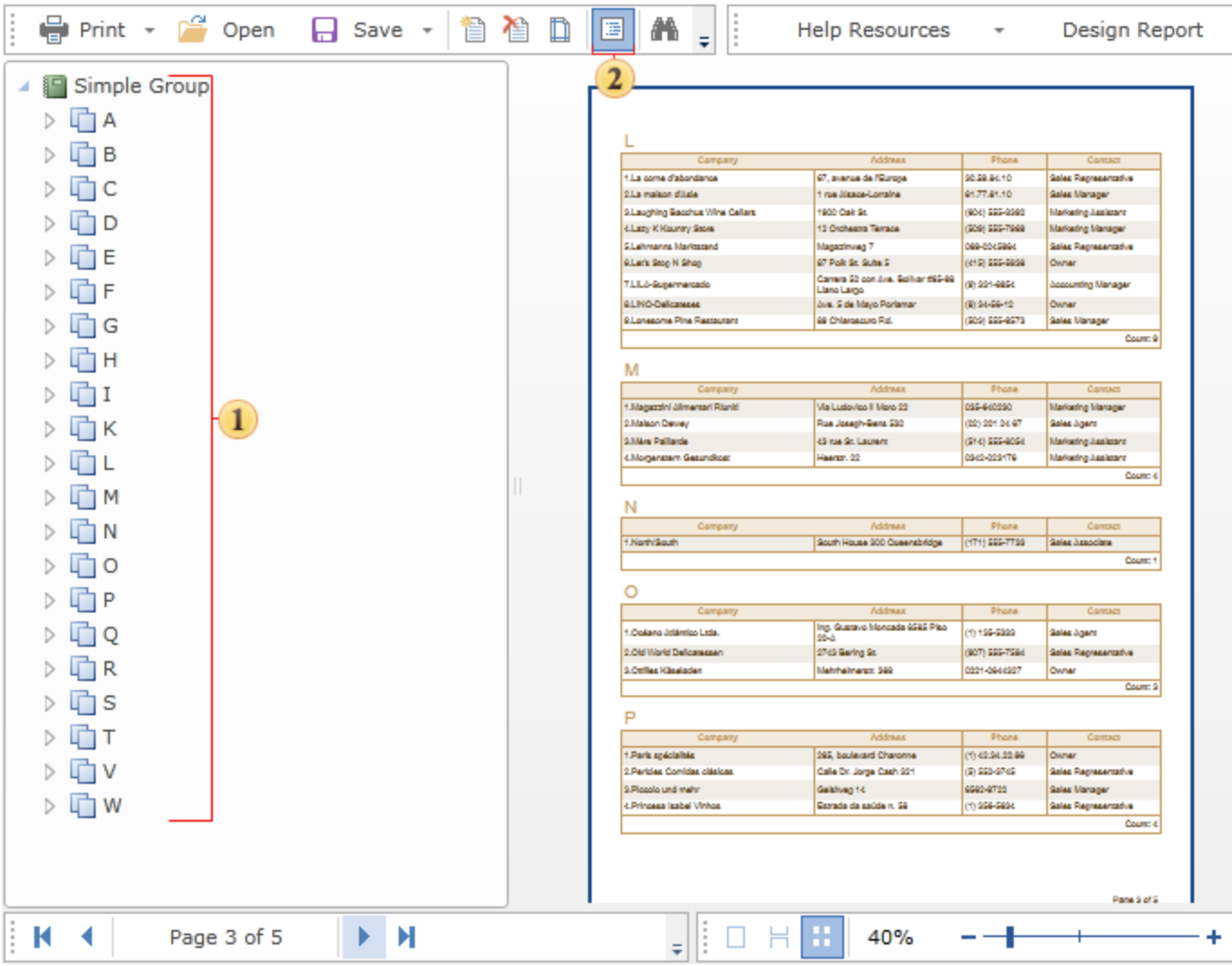
from the report code or refer to it from the expression. Before showing a report in the window of preview, Stimulsoft Reports views all components of a rendered report and logs a tree of bookmarks.




### 5.32.1.1 Tree of Bookmarks

The tree of allows viewing the hierarchical structure of a report. For example, two bookmarks were specified: one on the **Master** band and the second on the **Detail** band. In this case, each element of the **Master** band bookmark fits to a node of the bookmarks tree. All elements of bookmarks from the **Detail** bands will be added to the proper node of the **Master** band.

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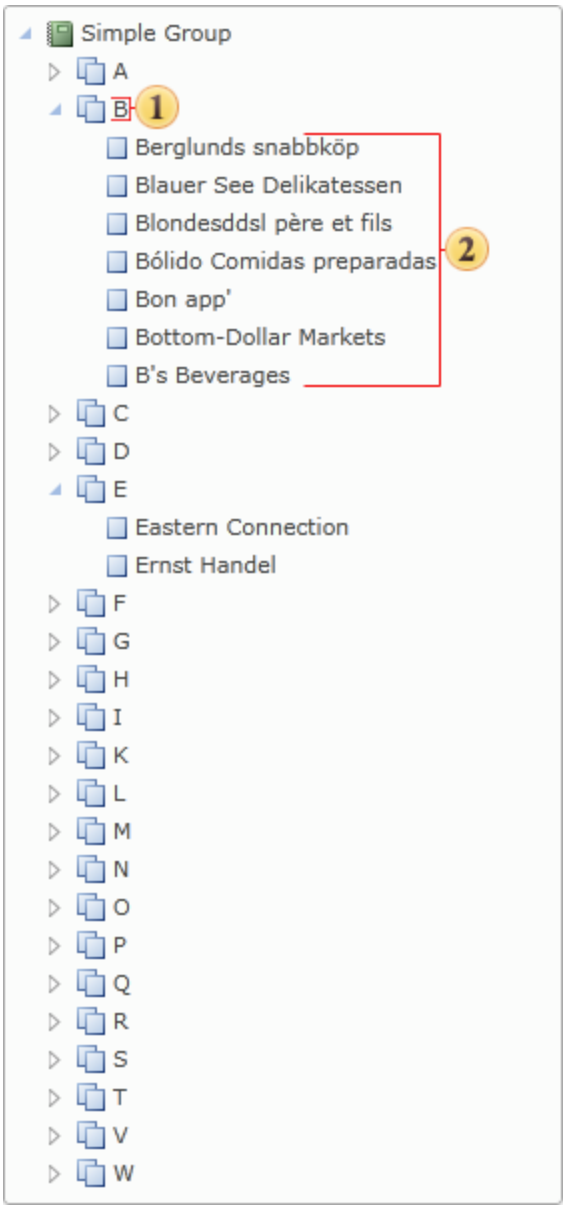


### 5.32.1.2 Bookmarking Using Code

Using the **Interaction.Bookmark** property very complicated structure of bookmarks in a report can be formed. But sometimes it is not enough of this property. For example, it is necessary to add nodes to the tree of bookmarks without using the **Interaction.Bookmark** property. Or the bookmark should be placed on another level of nesting. The **Interaction.Bookmark** property of Stimulsoft Reports can be used. This is an invisible property and it is available only from the code. It is very simple to use this property. For example, to add the bookmark of the first level of nesting the following code can be used:

```
Bookmark.Add("My Bookmark");
```

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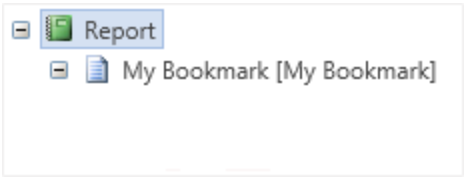
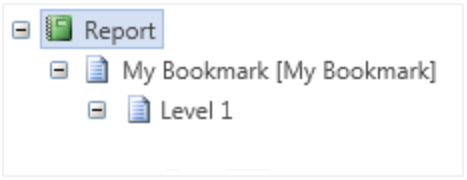
This code will create this bookmark in the tree of bookmarks:



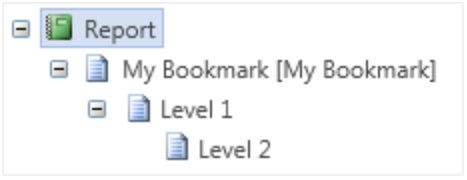

To add a bookmark of the second level to the tree it is necessary write the following code:

```
Bookmark["My Bookmark"].Add("Bookmark Level2");
```




...and for the third level:

```
Bookmark["My Bookmark"]["Level2"].Add("Bookmark Level3");
```




To create all three bookmarks the code sample shown above can be used. Stimulsoft Reports automatically checks presence of each bookmark in a tree and will add ones which should be added. Sometimes it is required to organize navigation using bookmarks. If it is necessary to find components the **Interaction.Bookmark** property of these components should be logged. The value of the **Interaction.Bookmark** property should be the same with the name of the created bookmark. For example, add the bookmark:

```
Bookmark.Add(Customers.CompanyName);
```

So the values of the **Interaction.Bookmark** property should be as follow:

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```
{Customers.CompanyName}
```

As a result all components will be marked with bookmark with the company name. The same company name will be added to the report tree. And, when clicking on the bookmark node of the report tree, all components will be found.

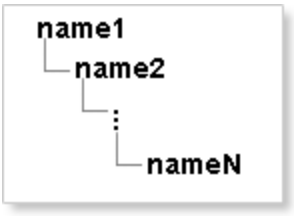
#### 5.32.1.3 Creating Bookmarks Using Expression

Using the expression it is possible to form rather complex structure of bookmarks in a report. Even a flat report (containing no subordinate entries) can be represented as a hierarchy of bookmarks. General view of the expression with which one can submit any report as a hierarchy of bookmarks is as follows:

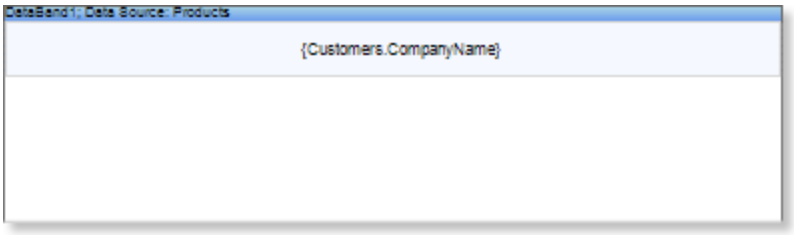
```
%\name1\name2...\nameN
```

where **name1** is a name of a highest level bookmark;
**nameN** is a name of the lowest level bookmark.

The picture below shows the expression hierarchy of a common type:




In the name of the bookmark the following things can be specified: function, expression, data source column, system variables, random names, aliases and more. To make a flat report with the hierarchy of bookmarks, create a single **Data** band, place the band on a text component with the **Company Name** data source column. The picture below shows an example of a report template:




When rendering the report a list of companies will be built, but the tree of bookmarks will not be shown. To show the hierarchy of bookmarks it is necessary to specify an expression (see below an axample):

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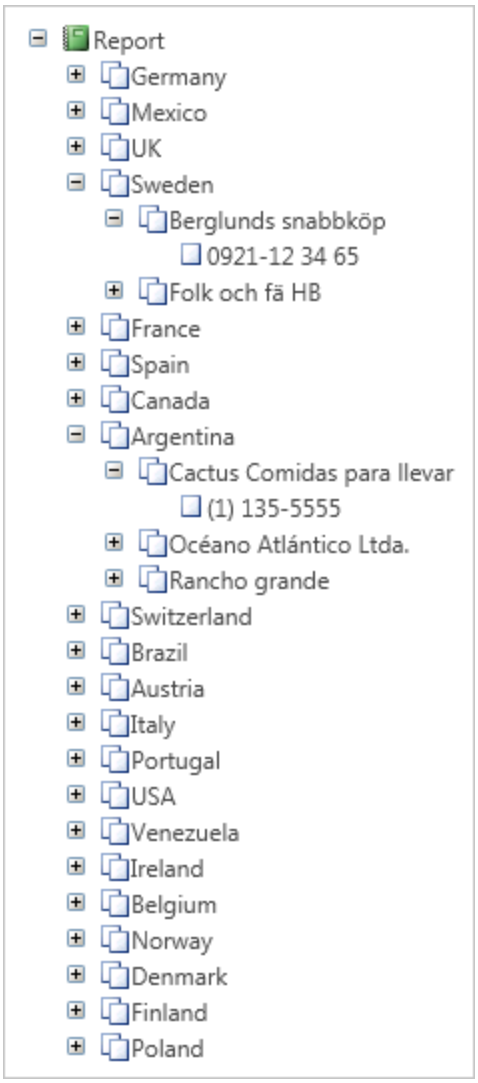
```
%\{Customers.Country}\{Customers.CompanyName}\{Customers.Phone}
```

As seen from the expression the hierarchy of bookmarks will be represented in three levels:
The highest level will be represented as bookmarks which correspond to the name of the country.
The middle level will be represented as bookmarks which correspond to the name of the company.
The lowest level will be represented as bookmarks which correspond to the phone number of the company.

The picture below shows an example hierarchy of tabs:

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#### 5.32.1.4 Bookmark Nesting

Nesting depends on which components generated bookmarks. For example, the page bookmark will always be one level higher then other bookmarks. The bookmark, created with the **GroupHeaderBand** component, is one level higher then the bookmark, created by the **DataBand** component, in this group. In the Master-Detail relation the Master bookmark will enable all Detail bookmarks. For example, we have a report with a group.

**Group**
--Data 1
--Data 2
--Data 3
**Group**
--Data 1
--Data 2
--Data 3

In this report groups include data. And bookmarks from the group will include bookmarks from data. As a result we get the same structure in the tree of bookmark. For example:

**Group 1**
--**Group 2**
----Data 1
----Data 2
----Data 3

**Group 1**
--**Group 2**
----Data 1
----Data 2
----Data 3

In the tree of bookmarks two nodes will be created. They are **Group 1**, **Group 1**. Each of these nodes will include the **Group 2** node. The **Group 2** nodes will include the **data** nodes. For example, the Master-Detail report:

**Master-Data**
--Data 1
--Data 2
--Data 3
**Master-Data**
--Data 1
--Data 2
--Data 3

In this example the nodes of the Master band form the Master-Data nodes. Each of these nodes will include nodes formed with the Detail band.

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## 5.32.2 Hyperlinks

Hyperlinks are used in report navigation. Also it is possible to use the **Interaction.Bookmark** and **Interaction.Tag** properties for this. Hyperlink is set in the **Interaction.Hyperlink** property. When report rendering, the expression, specified in this property, is set in the **Interaction.HyperlinkValue** property. Setting occurs when report rendering. There are three ways of specifying hyperlinks. It is possible to use one of them.

### 5.32.2.1 Hyperlink to Another Component in Report Using Interaction.Bookmark

In this way you should put the # symbol before the hyperlink text. This makes the report generator to understand that this is a reference inside of a document. If, in the window of preview, a user clicks on this component then the report generator will start to search all bookmarks of this report. If the bookmark name concurs with the hyperlink name (the # symbol is skipped) then this component will be displayed in the window of preview. It is important to remember that a bookmark is shown in the tree of bookmarks.

**Notice:** The Interaction.Bookmark property contains the text marker by what this component will be found, when hyperlink processing.

### 5.32.2.2 Hyperlink to Another Component in Report Using Interaction.Tag

In this case it is necessary to add two # symbols before a hyperlink. In this case the search is executed using the **Interaction.Tag** property of components (two # symbols in the text of a hyperlink are skipped). **Interaction.Tag** properties are not shown in the structure of a report. If one want to make navigation without bookmarks showing in the structure of a report then one should use this way.

**Notice:** When using the **Interaction.Tag** property, one should not use the hyperlink to another component in a report in **ASP.NET**. In **ASP.NET**, when creating a report, it is impossible to use hyperlink to another component in a report, created using the **Interaction.Tag** property.

### 5.32.2.3 Hyperlink to External Documents

In this way any symbols to a hyperlink should not be added. The string of a hyperlink is directly sent to the OS for processing. For example, for Notepad start just write the following code:

```
notepad.exe
```

For jumping to the address in the Internet:

```
http://www.site.com
```

For Email hyperlink:

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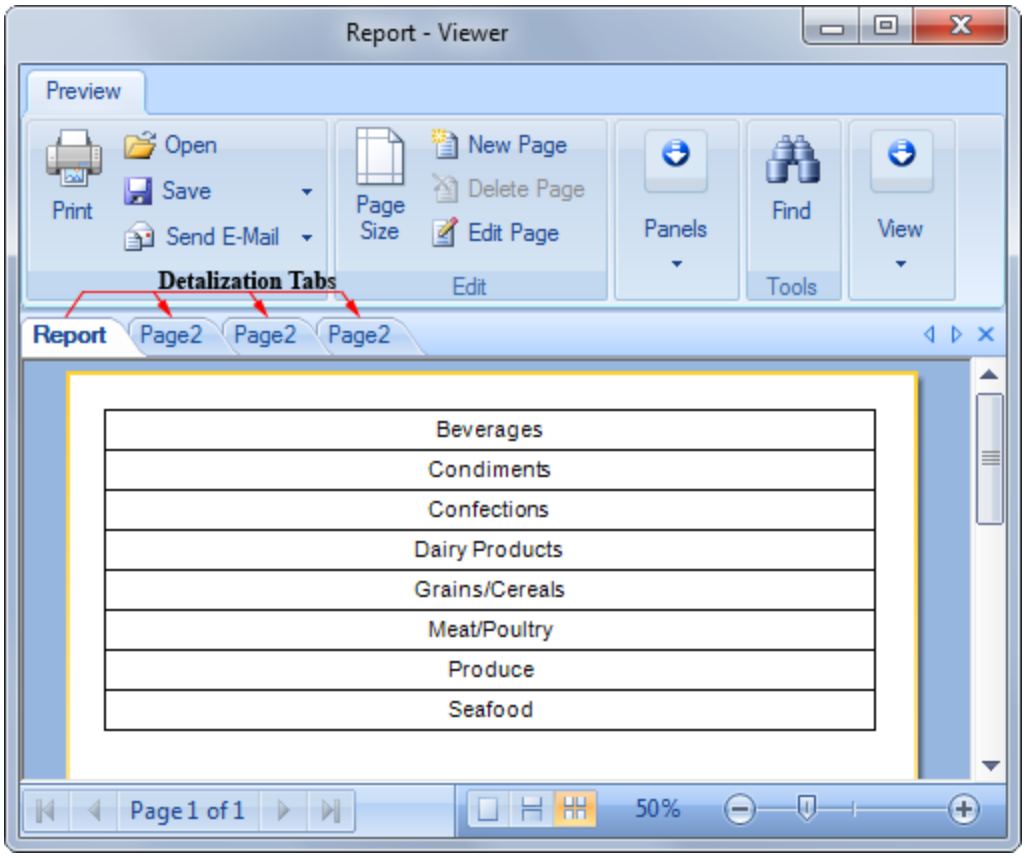
```
mailto: mail@domain.com
```

**Notice:** When Web reports rendering, bookmarks can be put only on visible fields. For example, on a text, on an image. Otherwise this hyperlink will be ignored. This principle is to be considered when exporting reports to other formats

### 5.32.3 Drill-Down Reports

In Stimulsoft Reports it is possible to create an interactive report with detailing. The report detailing refers to additional interpretation of data in the report. Usually interpretation is done when you click on any item. After that, there occurs a detailed report rendering in a new tab in the viewer. The picture below shows the viewer window with detailed tabs:




It should also be noted that the specification can be multi-level. In other words, detailing can also be interpreted, i.e. an hierarchy of detailing can be built. For example, a report with the names of categories will have details of products within a specific category. A report with products will have detailing by producers, for a particular product, etc. The picture below schematically shows the levels of detailing:

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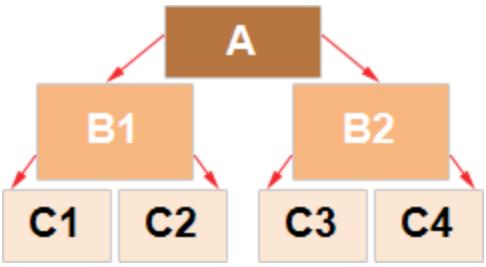
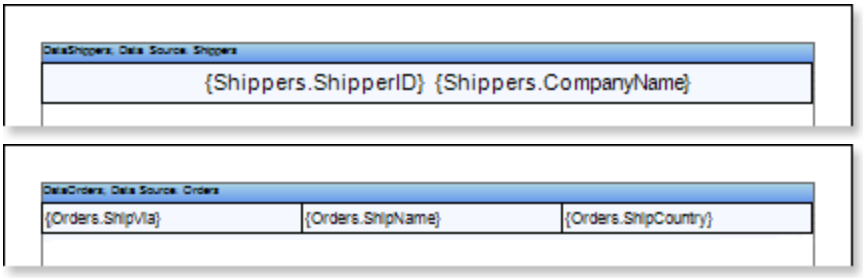



As can be seen from the picture above, a report can be interpreted as reports **B1** and **B2**. This is the first level of detailing. Reports **B1** and **B2**, in turn, have detailing as reports **C1**, **C2**, **C3** and **C4**. This is a detailing of the second level. Consider the creation of frill-down reports in more detail.

#### 5.32.3.1 Drill-Down Report Using Report Pages

The drill-down report using a report page means an interactive report in which detailing goes using a different page of this report template. To create this report, you should set the value of the **Interaction.Drill-Down Page** property for a component, which should be detailed. The value specifies a page with detailed information. Consider the example of a **Drill-Down Report** using the page. The **Data Band** and a text component in it should be placed in the first page of the report template. Specify the data source **Shippers** for the band. In the text component indicate the expression **{Shippers.ShipperID}** and **{Shippers.CompanyName}**. On the second page of the report put a **Data Band** and a text components in it, select the data source **Orders** for this band. Insert the expressions in the text components: **{Orders.ShipVia}**, **{Orders.ShipName}** and **{Orders.ShipCountry}**, respectively. The picture below shows two pages of the report template:




Also, add the **Header Band** on a page with detailed data. Then, select the text component with expressions **{Shippers.ShipperID}** and **{Shippers.CompanyName}** and change the values of some properties. The **Interaction.Drill-Down Enabled** property must be set to **true**. Then, set the value of the **Interaction.Drill-Down Page** property to the page on which the detailed data are placed. In this case, it is the **Page2**. The picture below shows a window for selecting detailing pages:

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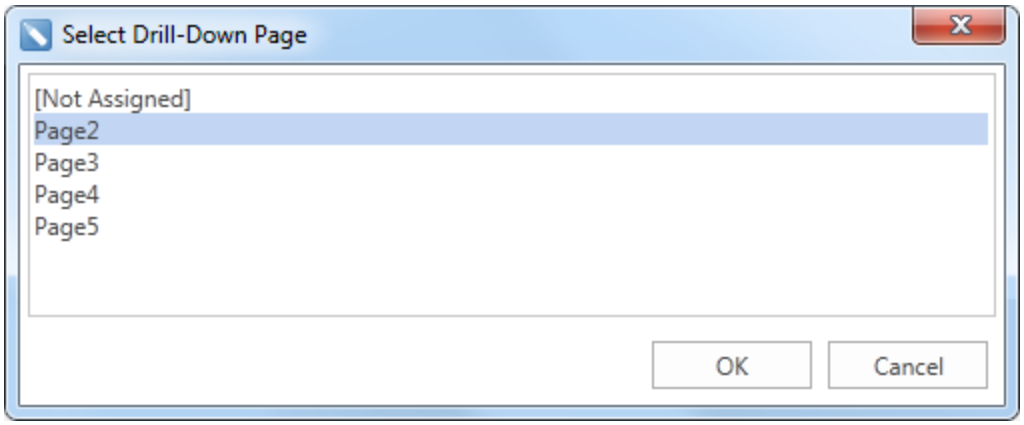


Also, specify the **Drill-Down Parameters**, if necessary. In each setting you should change the following properties: **Name** and **Expression**. In this case, define a detailed parameter with the name **ShipperID** and the expression **Shippers.ShipperID**. Set data filtering in the **Data Band**, which will contain detailed data, . To do this, add a filter and specify a filtering expression: **(int)this["ShipperID"] == Orders.ShipVia**. After that, you should render a report. The picture below shows a rendered page of the report:

As can be seen from the picture above the page with the main data is rendered. To display detailed information, you should click the rendered text component. Then, the report generator, considering the **Drill-Down Options** and filtering data on the **Data Band**, renders the second page of the report template. The picture below shows a schematic detailing of the report:

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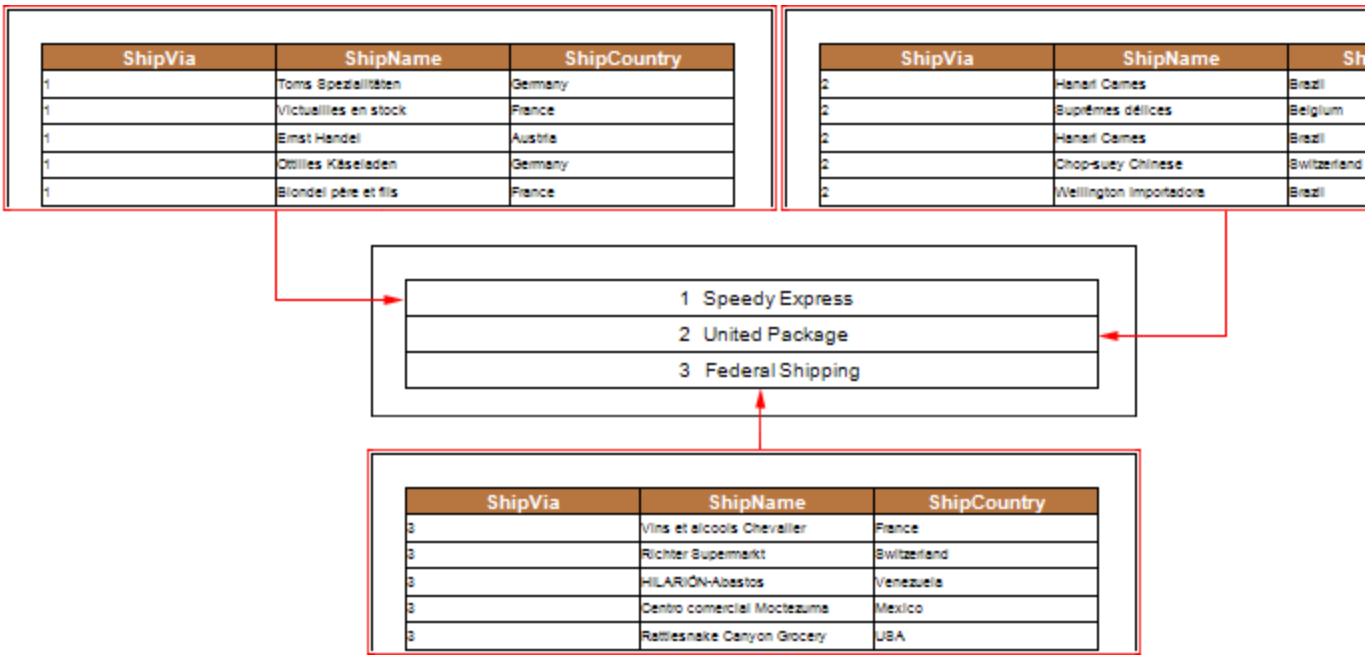
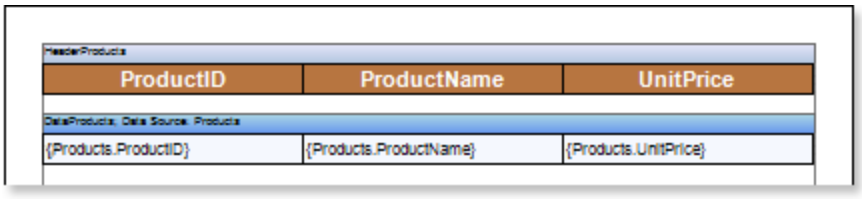



### 5.32.3.2 Drill-Down Reports Using External Report

The drill-down report with another (external) report means an interactive report in which the main and detailed data are located in different reports. It is possible to create such a report using the **Interaction.Drill-Down Report** property. Consider the example of a Drill-Down Report using an external report. First, create a report with detailed data. This report will contain a list of products and their prices. Put the **Data Band** in the page of the report template with text components which contain expressions: **Products.ProductID**, **Products.ProductName** and **Products.UnitPrice**. For this band, you should select the data source **Products**. Also add the **Header Band**. The picture below shows a page template with detailed information:




Add a filter with the expression **(int)this["CategoryID"] == Products.CategoryID** in the **Data Band**. After that, you must save the report template. For example save the report to: **D:\\Products.mrt**. Now create a report that will contain the main data in this example, the category names. Put the **Data Band** with a text component in the page template. The text component will contain the expression **Categories.CategoryName**. For this band, you should select the data source **Categories**. The picture below shows a page of the report template with the main data:

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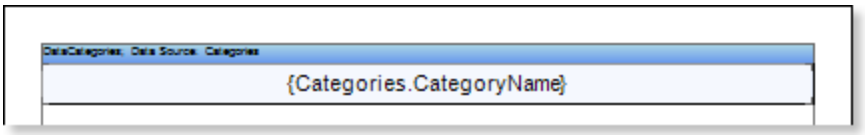


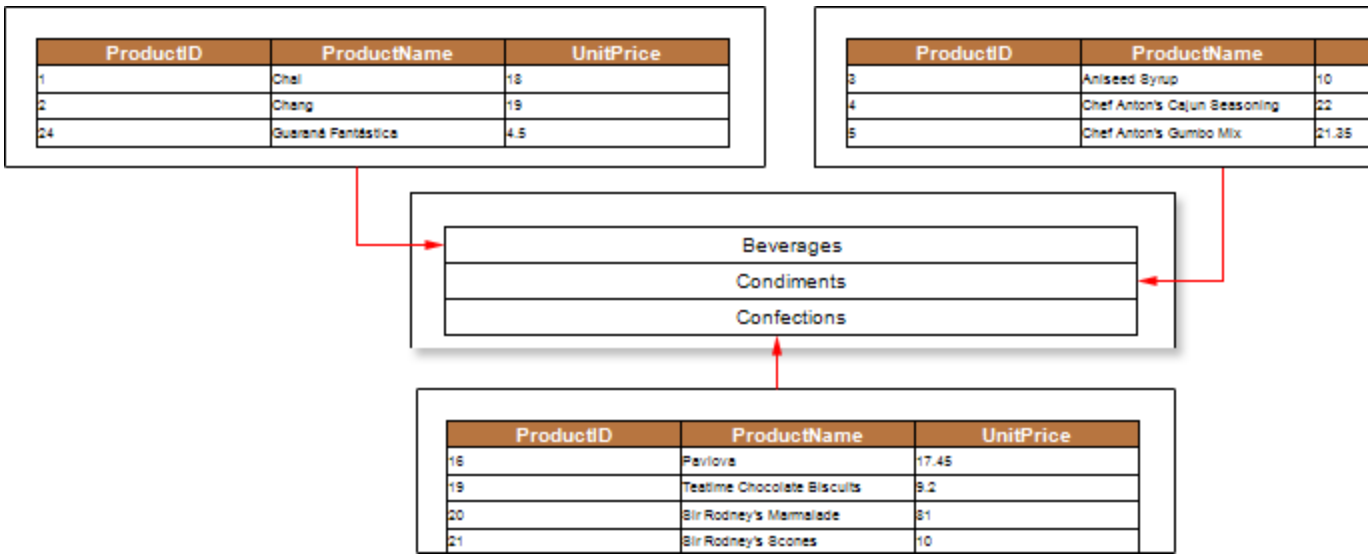

Then, select the text component and change the values of some properties. The **Interaction.Drill-Down Enabled** property must be set to **true**. Then, set the value of the **Interaction.Drill-Down Report** property to the full path to the report with detailed data.:

| | |
|---|---|
| Drill-Down Report | D:\\Products.mrt |

Also, specify the **Drill-Down Parameters**. In each parameter you must change the following properties: **Name** and **Expression**. In this case, define a detailed parameter with the name **CategoryID** and the expression **Categories.CategoryID**. Then render a report. The picture below shows a page of the rendered report:

| |
|---|
| Beverages |
| Condiments |
| Confections |
| Dairy Products |
| Grains/Cereals |
| Meat/Poultry |
| Produce |
| Seafood |

As can be seen from the picture above template page will be rendered with the main data. To display the detailed data, click the rendered text component. The report generator will run the report and render it, considering the parameters of the detailing and filtering. The picture below shows schematically the report:

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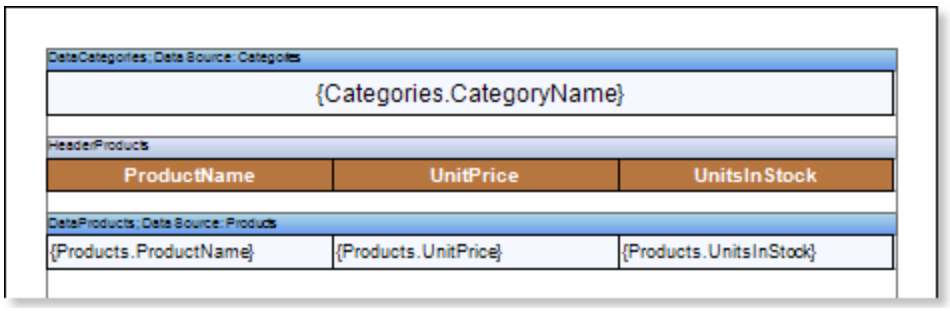
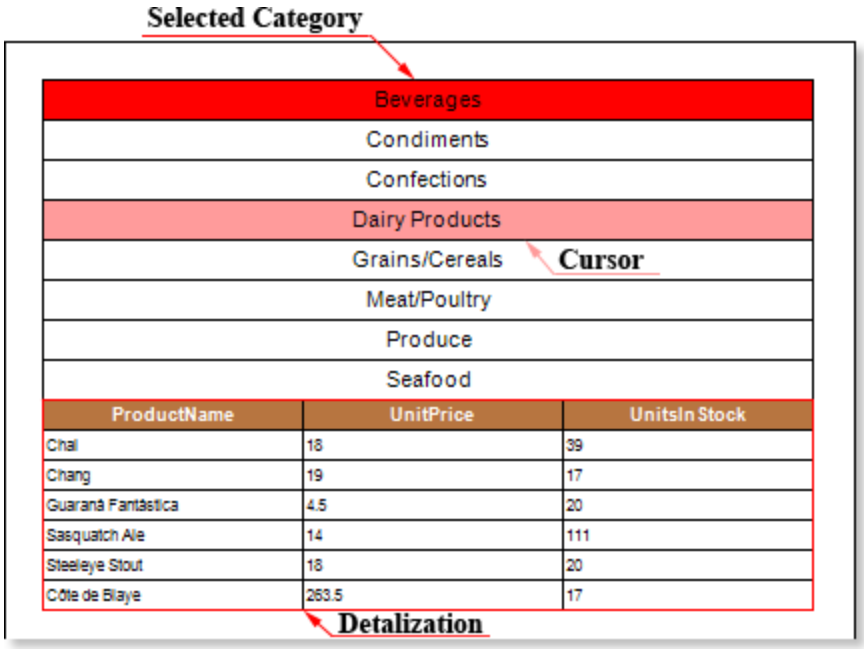
### 5.32.3.3 Interactive Selection

One of the drill-down types is the interactive selection. The Interactive Selection can be used to produce data detailing on the same page, on which the main data are placed. Creating a report with the interactive selection is possible using the **Interaction.Selection Enabled** property. Only a **Data Band** has this property. Consider the example of a report using the interactive selection. Open a report with the list of categories and products related to these categories. The picture shows a report template:




Select the **Data Band** in order to enable interactive selection. In this case, the band that contains the names of categories (the band which has a text component with the expression **Categories.CategoryName**) will be selected. Set the **Interaction.Selection Enabled** property of this selected band to **true**. After that, add a filter to the detailed band, if necessary. In this example, the filter will be added to the Data Band that contains information about products. Set a filtering expression, in this case it is **DataCategories.SelectedLine == Products.CategoryID**. Then, render a report. The picture below shows a page of the rendered report with interactive selection:

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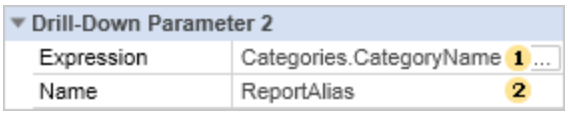
As can be seen from the picture above, the category **Beverages** was selected. This category has been detailed and displayed showing products in this category. Also, in this picture you can the category **Dairy Products** highlighted when the cursor is hovered. In addition, it should be noted that in the interactive selection the multi-level nesting may also be present.

#### 5.32.3.4 Drill-Down Parameters

When you create an interactive report using **Drill-Down** relations, there is a possibility in the report generator to specify the parameters to be passed from the main report to the detailed one. For example, you can pass a parameter to be used for filtering data in a detailed report. Also, you can initialize properties (**Report Alias**, **Report Title**, **Report Description**) of the detailing a report by specifying them in the parameters of the detailed report. Suppose there is an interactive report that contains the category names and details of products related to these categories. Let's make each detailed tab has the category name by which it is open. To do this, change the values of properties for the group **Drill-Down Parameter**:




1 Specify the name of the parameter in the field of the **Name** property. In order to initialize a report property, you must specify its name in the name of the detailed parameter. In this case, you must specify the **ReportAlias**.
2 In the field of the **Expression** property specify an expression that is evaluated each time you pass a parameter to the report. In this case, you must specify the expression **Categories.CategoryName**.

Now, in the rendered report, a tab with the detailed data will have the category name, which has been interpreted. The picture below shows a report that was built with the tabs of detail:

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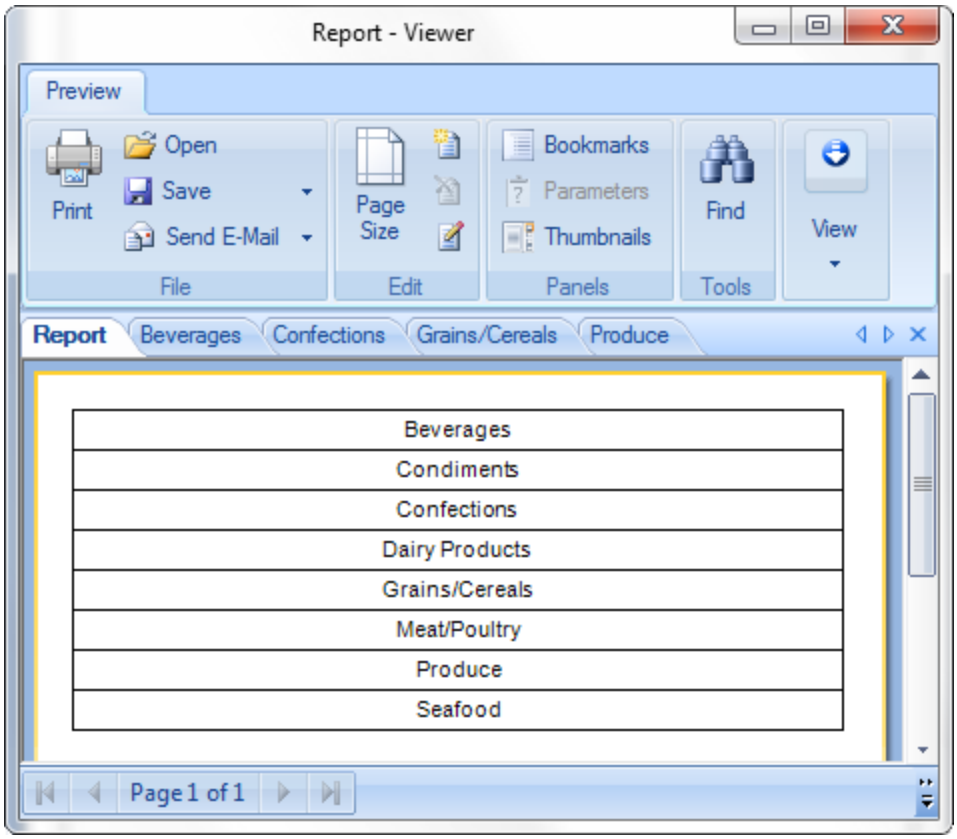


As can be seen from the picture above, the categories **Beverages**, **Confections**, **Grains/Cereals**, **Produce** were detailed. And the tab, which is located on the detail of these categories have names of categories, respectively.

## 5.32.4 Dynamic Sorting

In **Stimulsoft Reports** it is possible to use dynamic sorting. Dynamic sorting provides the ability to change the sorting direction in the report. Sorting the data can be performed both on a single data column as well as in several ones. Set the **Interaction.Sorting Enabled** property of the component, by clicking on which the dynamic sorting by one column will be enabled, to **true** and change the value of the **Interaction.Sorting Column** property. The value of this property is the data column, by which dynamic sorting will be done. It should be noted you can specify only one data column for one component. Then, select the component to which dynamic sorting was set. Dynamic sorting is carried out in the following directions: **Ascending** and **Descending**. Each time you click the component, the direction is reversed. The picture below shows a report page with dynamic sorting:

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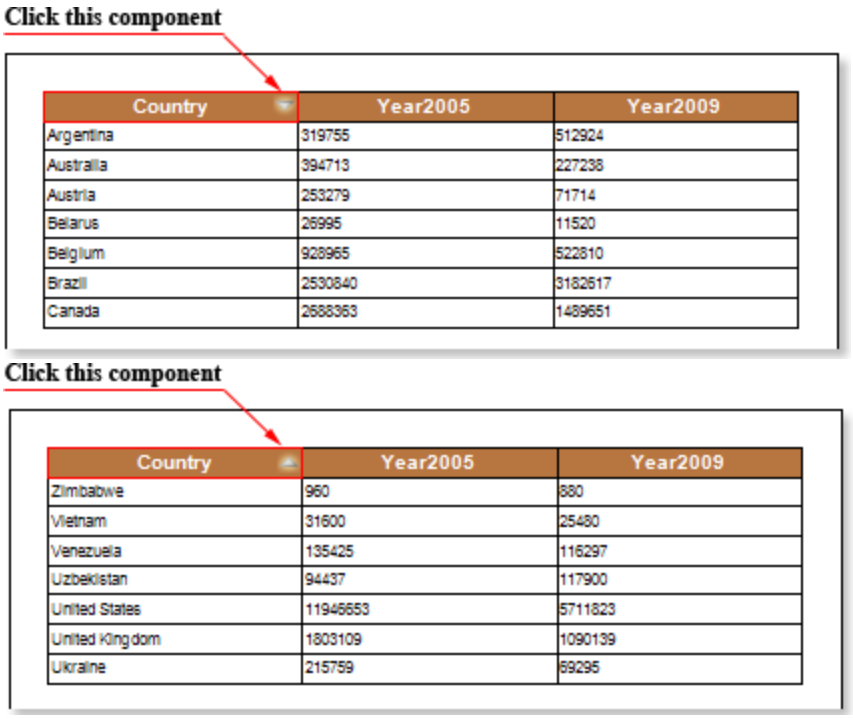
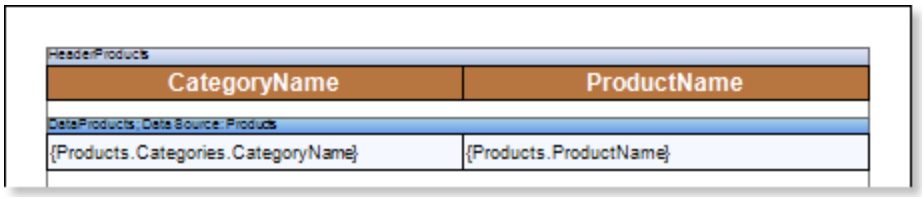



If you need to sort by multiple columns simultaneously, it can be done by pressing the Control button. Consider the following example. Suppose there is a report that contains the names of categories and a list of products. The picture below shows the report template:




When rendering the report without sorting, data are taken from the data source sequentially. In order to enable dynamic sorting you need to select the component when clicking it the sort direction will be changed. In this example, select text components in the **Header Band**. Then set the **Interaction.Sorting Enabled** properties for both components to **true**. In the fields of the **Interaction.Sorting Column** properties specify the data column to be used for sorting data. In this case, specify the column **{Products.Categories.CategoryName}** for the text component with the expression **CategoryName**, and for the text component with the expression **ProductName** specify the column **{Products. ProductName}**. Render a report. In order to sort data by multiple columns, you must click the components holding the **Control** button and change the sorting direction. The picture below shows a report page rendered with dynamic sorting by multiple columns:

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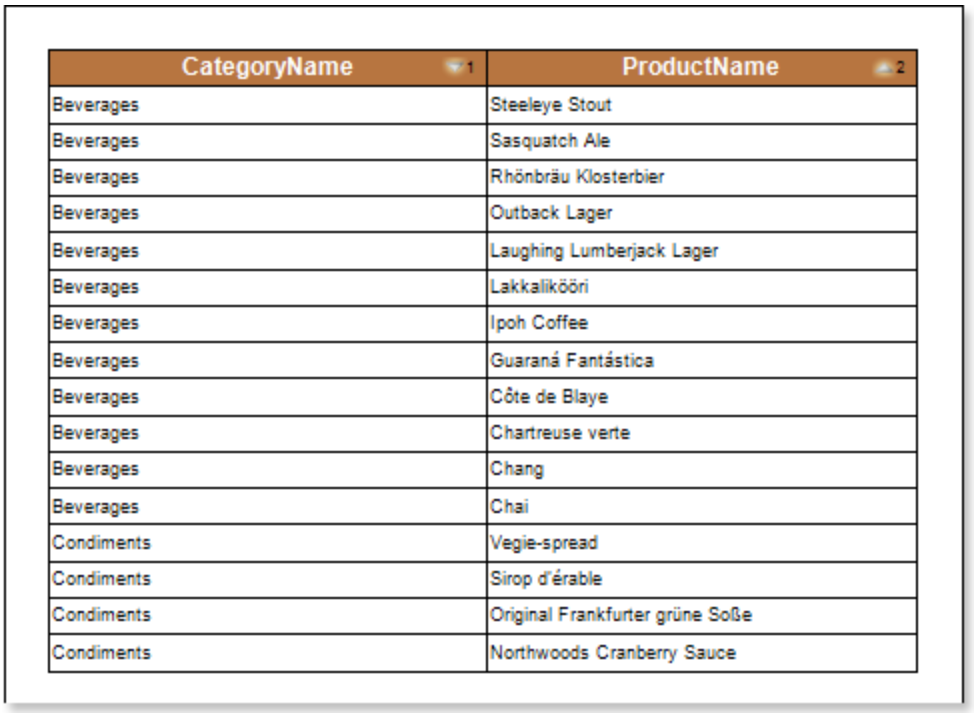

| CategoryName 1 | ProductName 2 |
|---|---|
| Beverages | Steeleye Stout |
| Beverages | Sasquatch Ale |
| Beverages | Rhönbräu Klosterbier |
| Beverages | Outback Lager |
| Beverages | Laughing Lumberjack Lager |
| Beverages | Lakkalikööri |
| Beverages | Ipoh Coffee |
| Beverages | Guaraná Fantástica |
| Beverages | Côte de Blaye |
| Beverages | Chartreuse verte |
| Beverages | Chang |
| Beverages | Chai |
| Condiments | Vegie-spread |
| Condiments | Sirop d'érable |
| Condiments | Original Frankfurter grüne Soße |
| Condiments | Northwoods Cranberry Sauce |

As can be seen from the picture above, when sorting by multiple columns, the data are sorted first by the first column. In this case, the categories are sorted in the **Ascending** direction. Then, data are sorted by the second column. In this case, the products are sorted in the **Descending** direction, but within each category. In other words, in the products category **Beverages** is ordered in the direction from **Z** to **A**, in the category **Condiments**, too, from **Z** to **A**, etc. To disable sorting by multiple columns, you must release the **Control** key and click the component with dynamic sorting.

### 5.32.5 Dynamic Collapsing

Sometimes you need to show a report in a compact form. In the report generator **Stimulsoft Reports** is the ability to dynamically collapse information in the preview window. A report with dynamic collapsing is an interactive report, in which collapsing blocks can expand/collapse its contents clicking the title block. Dynamic collapsing is usually used in the reports with grouping, Master-Detail, hierarchical reports. Dynamic collapsing can be multilevel. Consider an example of using dynamic collapsing in the report. Let's have a report that contains a list of products that are grouped by category. The picture below schematically showed the report with a multilevel collapsing:

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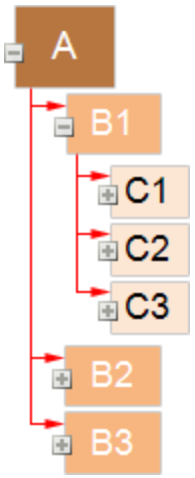


As can be seen from the picture, the collapsing unit **A** contains a collapsible blocks **B1**, **B2**, **B3**. This is dynamic collapsing of the first level. In turn, the block **B1** contains a collapsible blocks **C1**, **C2**, **C3**. This is dynamic collapsing of the second level, etc. Consider the example of a dynamic collapsing of the report with the group. Let's have a report that contains a list of products that are grouped by category. Below is a picture with a report with grouping:

| Beverages | | |
|---|---|---|
| Côte de Blaye | 263.5 | 17 |
| Chartreuse verte | 18 | 69 |
| Steeleye Stout | 18 | 20 |
| Guaraná Fantástica | 4.5 | 20 |
| Sasquatch Ale | 14 | 111 |
| Rhönbräu Klosterbier | 7.75 | 125 |
| Lakkalikööri | 18 | 57 |
| Outback Lager | 15 | 15 |
| Ipoh Coffee | 46 | 17 |
| Laughing Lumberjack Lager | 14 | 52 |
| Chang | 19 | 17 |
| Chai | 18 | 39 |

Count: 12

| Condiments | | |
|---|---|---|
| Original Frankfurter grüne Soße | 13 | 32 |
| Sirop d'érable | 28.5 | 113 |
| Chef Anton's Gumbo Mix | 21.35 | 0 |
| Northwoods Cranberry Sauce | 40 | 6 |

Enable dynamic collapsing, where the title of the collapsing unit will be group titles, i.e. in this case, the category names. To do this, return to the report template (see the picture).

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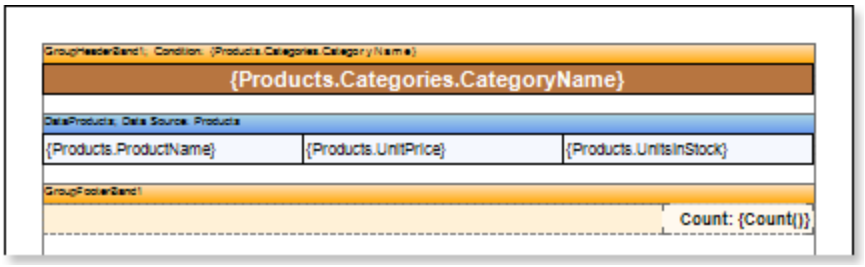
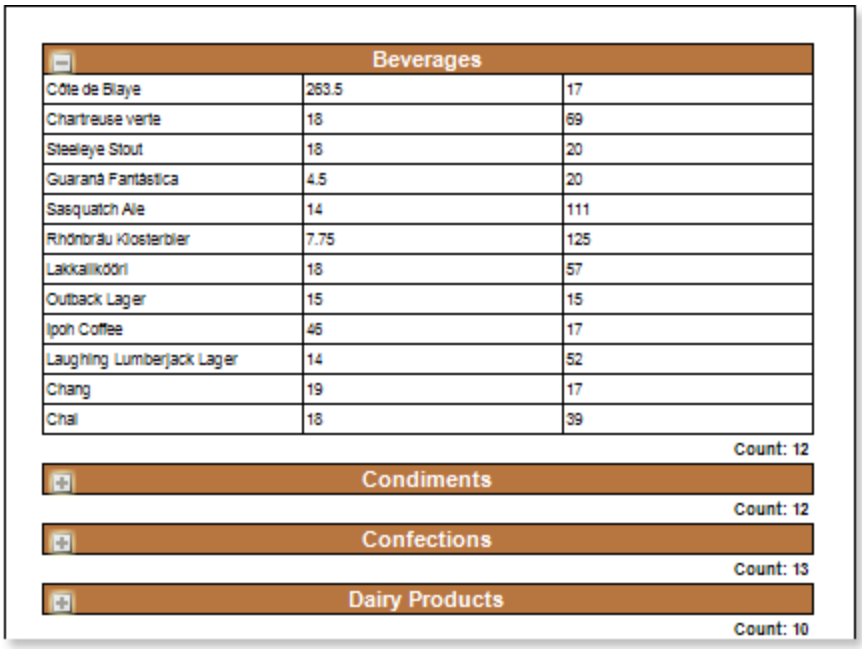



Select the component that will be a title of the collapsing block, i.e. in this example, the **Group Header** band. Then, set the **Interaction.Collapsed Enabled** property to **true**. In the field of the **Interaction. Collapsed** property specify an expression **{GroupLine! = 1}**. Render a report. The picture below shows a report page rendered with dynamic collapsing:




Now, when rendering a report, the group will have a look as expanding/collapsing blocks. To expand/ collapse the block, you should click the title block. In this case, the group header. On the component for which the dynamic collapsing is enabled, is displayed if the block is collapsed the icon is displayed and the icon is displayed if the block is expanded. Note that you can collapse blocks with the the group footer. To do this, set the **Interaction.Collapse Group Footer** property to **true**.

## 5.32.6 Reports with Contents

Often it is necessary to create a report with contents. In this case you should create the report structure first and then create the report on the whole. But there is a question. How to output page numbers, because at the moment, when contents rendering, numbers of pages, which elements of contents refer to, are unknown. Use the anchor in this case. The **AddAnchor** method is used for creating an anchor. When creating an anchor, the report generator saves the current page and compares it with the specified anchor. For example:

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```
AddAnchor("MyAnchorName")
```

in this line of the code a new anchor with "**MyAnchorName**" will be created. To get the anchor value it is necessary to use the **GetAnchorPageNumber** method. This method returns the number of a page according to the anchor name. If there is no the anchor with such a name the 0 is returned.

For example:

```
{GetAnchorPageNumber("MyAnchorName")}
```

this text expression will return the number of a page according to "**MyAnchorName**". So having an anchor name you will know the number of a page on what this anchor was created. Using these two methods a contents building is organized. The contents is built first. Instead of numbers of pages hyperlinks to anchors are pasted. For all components which call a function for getting a page number via anchor you should set the **ProcessAtEnd** property to **true**. It is necessary to do because these components are to be processed in the end of report rendering when all numbers of pages are known.
After the contents has been created the whole report rendering is in process. Anchors are created while report building. After the report has been rendered, instead of hyperlinks, the real page numbers are put on anchors in the content. Let see the anchor usage in a template. Create the **Master-Detail-Detail** report that shows the list of products that is split with categories. For building of such a report you should have two pages. The first page for the contents and the second for the report. On the page of the contents we put two bands. Between them we set the **Master-Detail** link. Then, on the **Detail** band, we put the text component. This **ProcessAtEnd** text components property should be set to **true**.

**Notice:** You should enable the **ProcessAtEnd** property of the text component, which expression returns the number of a page. This property is used for the values of these text components to be processed after report rendering (when numbers of pages are known).

Specify the following text expression of the **Text** property:

```
{GetAnchorPageNumber(component.TagValue)}
```

this text expression will return the number of a page using the anchor.

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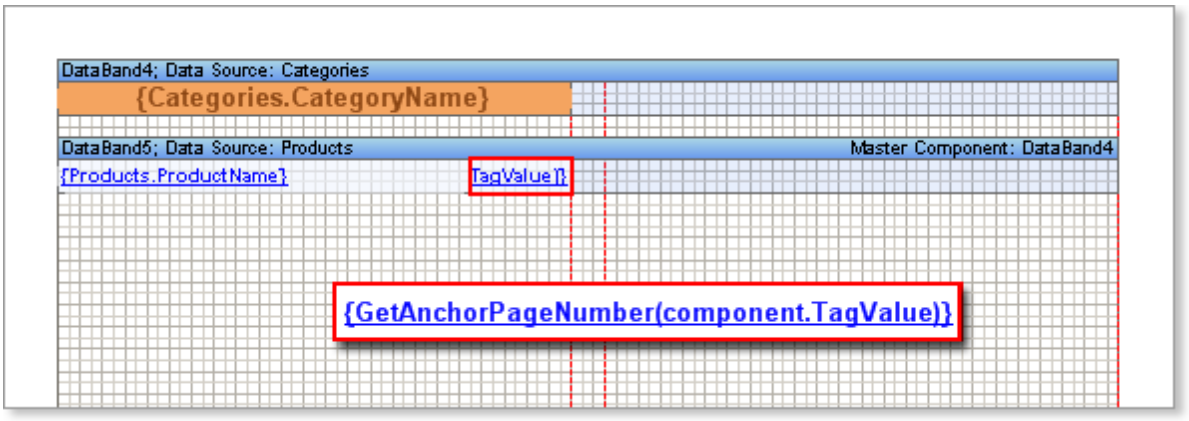


As an anchor name the value of the **Tag** property is used. For filling the **Tag** property the following expression is used:

```
{Products.ProductName}
```

in this expression the name of a product is used. Therefore, it is impossible to use the expression below:

```
{GetAnchorPageNumber(Products.ProductName)}
```

The component that contains an expression will be processed in the end of report building. So the value of the **Products.ProductName** field will be equal for all strings – the last in a list. That is why it is necessary to remember the value of the **Products.ProductName** field for every string when the content is being built. For this use the **Tag** property. On the second page the report is built. In the **Rendering** property of the **DataBand** component (used for the content building) the **AddAnchor** method is called. This method will return the current page in the moment of its calling.

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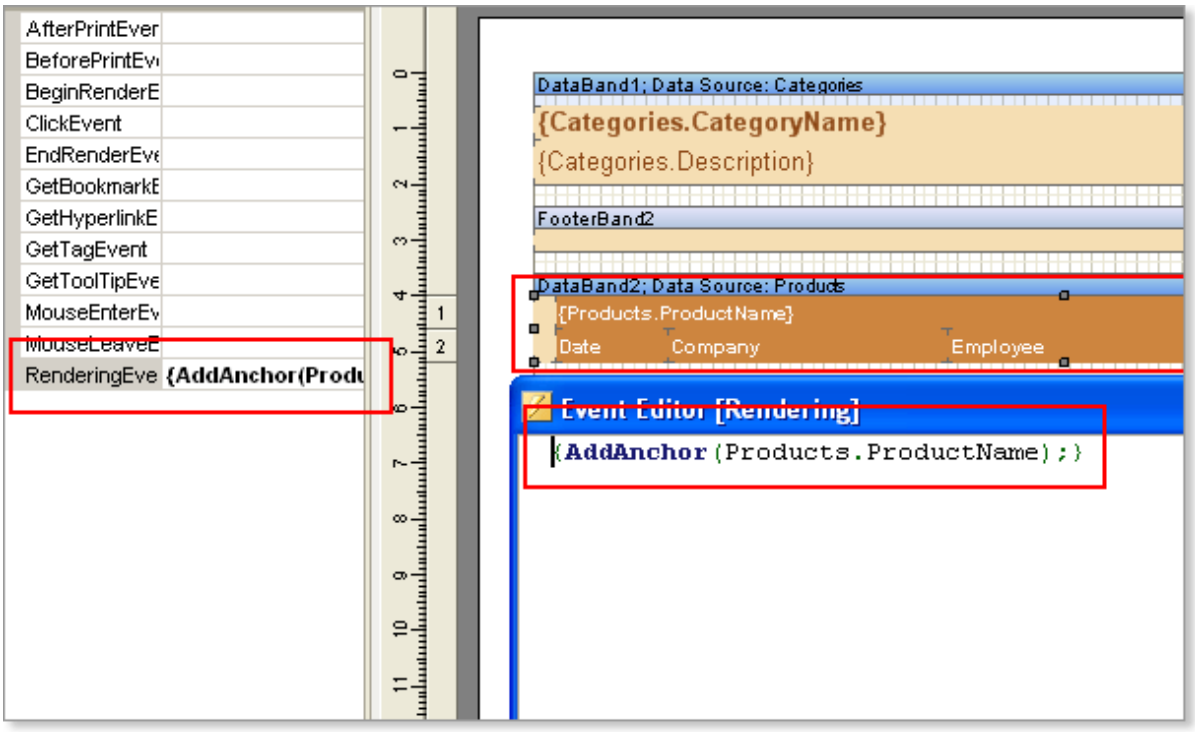


The anchor name is the value of the **Products.ProductName** field. As a result, the page number is rendered first. Then the second page is rendered and numbers of pages are saved. After the report rendering the report generator engine returns to the first page and numbers all pages.

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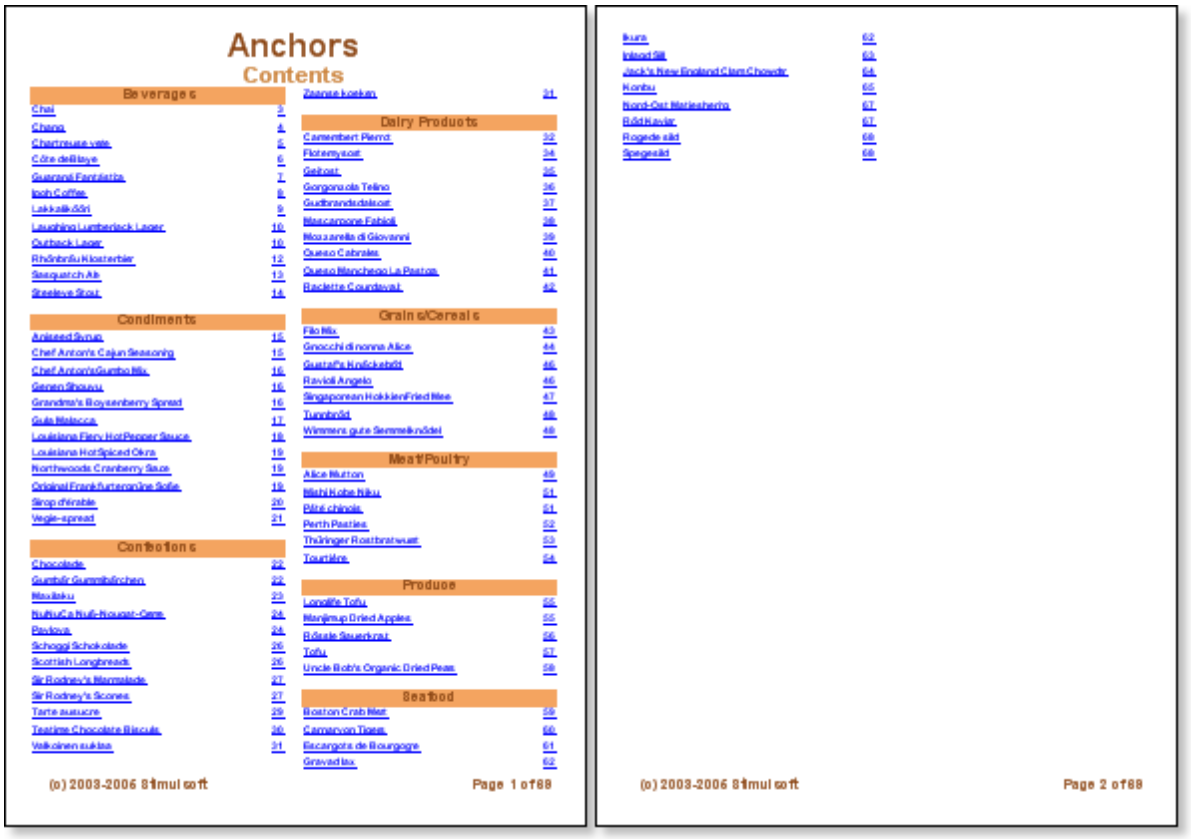


## 5.32.7 Editing

In our reporting we have the ability to edit some of the components of a rendered report in the viewer, or in the preview tab. As a rule, it must be made before printing or exporting. The components that can be changed are:

- Text;
- Text in Cells;
- Rich текст;
- Checkbox.

In order to make it possible to edit the report components, you should set the **Editable** property of these components to **Yes**. Then, you can modify these components in the viewer using the tool **Editor**. In text components editing means changing the text, and in the checkbox editing means changing the value (true or false).

**For PDF and Word documents:**
By default, when you export a **PDF** document you can edit it. But it is possible to include the mode in which after exporting editing will be available only for the report components with the **Editable** property enabled. If No is set, then you can edit all components, unless it is not limited with safety parameters. If you select Yes then you can only edit components with the **Editable** property enabled. The Word document can also be editable. However, with the parameter **Restrict Editing** it is possible to allow editing only the components that have the **Editable** property set to **Yes**. For this set **Restrict Editing** to **Except Editable Fields**.

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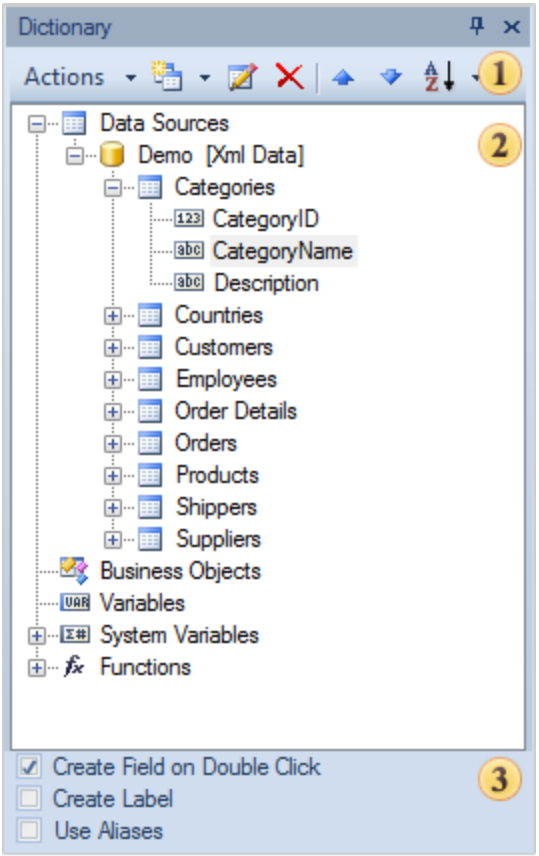
# 6 Data

## 6.1 Data Dictionary

Each report contains the data dictionary. The data dictionary contains information about the data used to create reports. This information includes: connections to databases, data sources and their relations, variables, and business objects. Also the report data dictionary may not have any information about the data, but the report will be rendered. The report data dictionary is displayed in the **Dictionary** panel. The picture below shows the **Dictionary** panel:




1 The **Data Dictionary** panel. Contains the basic controls in the dictionary.
2 The **Information** panel. Displays information about the data as a tree.
3 The **Settings** panel. Used to enable/disable some options to work with the data dictionary.

### 6.1.1 Control Panel

The basic elements to control data dictionary can be found on the control panel. The picture below

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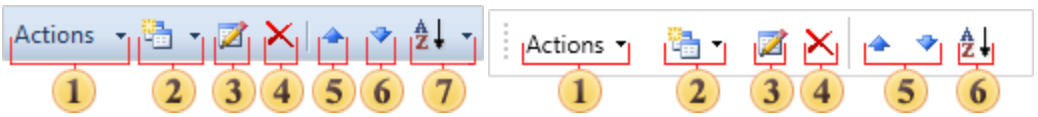
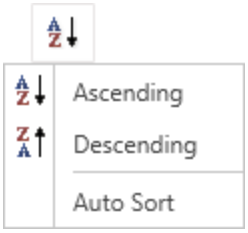
shows the control panel:




1 The **Actions** menu. This menu contains the main control commands for the data dictionary;
2 The **New Item** menu. In this menu the basic commands to create new elements in the data dictionary are placed;
3 The **Edit** button provides an opportunity to change any element, which can be edited;
4 Using the **Delete** button one can delete any item in the data dictionary available for deleting;
5 Pressing the **Up/Down** button, the selected item in the data dictionary is moved one position up/down;
6 The **Sorting Items** menu. In this menu one can select the sorting direction: Ascending, Descending. Also in this menu, one can enable Automatic Sorting. The picture below shows the Sorting Items menu:




The **Ascending** option sorts the information in order from **A** to **Z**; The **Descending** option sorts the information in order from **Z** to **A**. The **Auto Sort** sorts in order from **A** to **Z**. One should note that the items are sorted within functional groups. For example, data sources within the data sources group are not mixed with the variables and the variables within the variables group are not mixed with the data sources, etc. Also note the nesting of elements of the data dictionary.

#### 6.1.1.1 Menu Actions

In the **Actions** menu the main commands to control the data dictionary are located. The picture below shows this menu item:

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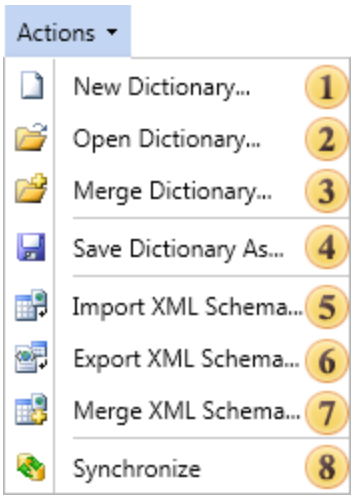


1 The **New Dictionary...** command is used to create a new data dictionary in an editing report;
2 The **Open Dictionary...** command invokes a dialog box in which one should specify the path to the previously saved data dictionary, select it and click Open. In this case, the current data dictionary is replaced with the specified data dictionary.
3 If it is necessary to add a data dictionary to the data dictionary in the report, you can use the **Merge Dictionary...** command. Using this option, the user will see a dialog box in which it is possible to specify the path to the previously saved data dictionary, select it and click Merge. Then, the selected data dictionary will be added to the data dictionary in the report. If the current data dictionary and the data dictionary, which will be added, have the same items, the existing items will be replaced on data items from the added data dictionary.
4 The **Save Dictionary As** command invokes a dialog box in which it is possible to specify the path by what data dictionary, the name of the saving *.dct file will be saved, click the Save button. After that, the data dictionary of a report will be saved;
5 Using the **Import XML Schema...** command it is possible to import information about the data from the selected XML schema to the data dictionary. After clicking this item, a dialog box will be invoked where a user must specify the path to a previously saved XML schema, select it and click Open;
6 Using the **Export XML Schema...** command it is possible to save the data dictionary as an XML schema. After clicking this item, a dialog box will be invoked where one must specify the path to save the XML schema and the *.xsd file name. Then click the Save button;
7 If it is necessary to add more information about the data from the selected XML schema to the information about the data in the data dictionary, click the Merge XML Schema... command. A dialog box will be invoked where one must specify the path to the XML schema, information from which will be added, select it and click Open;
8 The **Synchronize** command provides the ability to synchronize the contents of a data dictionary with the data that are registered for the report. This command synchronizes the registered data in a data store and data dictionary of a report. Moreover, the data can be passed to the report from both the program and be connected in the report. If data were registered using the RegData or RegBusinessObjects methods then, when running the report designer, they will be synchronized. It is necessary to note that if the data are registered in a report as connections to databases, then synchronization will not be performed automatically. This remark is not related to a connection in the report, generated for the XML data. For data that are registered in the report and receive the information from databases using queries, one must use the wizard to create a new data source. A wizard to create a new data source provides the ability to add tables from the database automatically.

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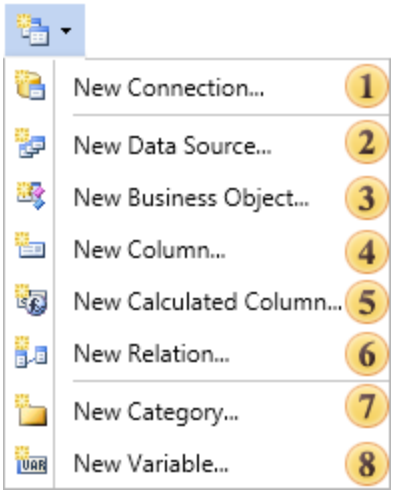
### 6.1.1.2 Menu NewItem

Commands using which it is possible to add new items to the data dictionary of a report can be found in the **New Item** menu. The picture below shows the **New Item** drop down list:




1 The **New Connection...** command invokes the wizard for creating a new connection, where you can select the type and settings of a connection. So, using this command, you can create a new connection in the data dictionary of a report.
2 If you want to create a new data source in the data dictionary of a report, you must select the **New Data Source...** command. The type of the data source depends on the type of connection. When using this command, a wizard to create a new data source that provides the ability to add more than one data table in a data dictionary of a report. It is necessary to know that this is just a method of describing the data source.
3 To add a description of a new business object to the data dictionary of a report you should select the **New Business Object...** command. It should be remembered that for each created business object, you must pass real business objects from the program. Since, as already mentioned before, only a method of describing data is created in the data dictionary. So, without real business objects, it will not work.
4 Add a new column in the selected data source or a business object using the **New Column...** command. Also, if the data column is added to the report data dictionary, but it does not really exist in the database, it can lead to incorrect report rendering.
5 In the report data dictionary, it is possible add a new calculated column in the selected data source. Use the **New Calculated Column...** command for this. In contrast to the simple data column, for proper report rendering, it is not necessary for a new calculated data column be placed in the database.
6 In order to organize a new relation between the data sources, you should use the New Relation... command. It is worth to note that relations can be created only between data sources and cannot be created between business objects. Therefore, if needed to create the relation between business objects, the **RegData** method should be used instead of the **RegBusinessObjects** method. The **RegData** method converts the business object into the ADO.NET DataSet. As a result, you can work with this business object by means of ADO.NET. Accordingly, it will provide an opportunity to add new relations between business objects and use them.
7 If you want to add a new category of variables in the report data dictionary, you should use the

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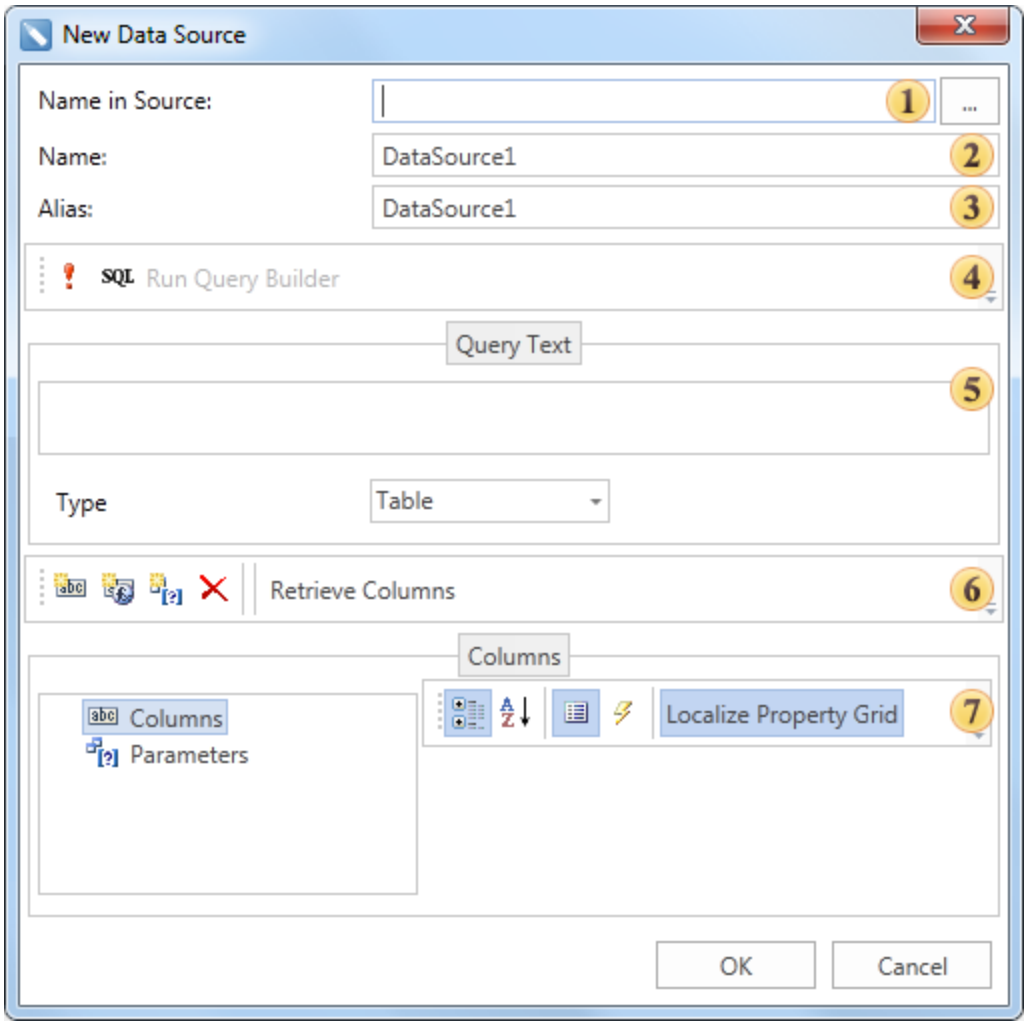
**New Category...** command. All variables are organized in a two-level structure, where the variable can be located both in the main list and in the category, which is located in the main list. Such a category can be created with this command.

8 The **New Variable...** command provides an opportunity to add a new variable into the data dictionary. If, when calling this command, any category of variables has been selected in the data dictionary, then the variable will be created in this category. If no category in the data dictionary has been selected or the Variable element has been selected in the data dictionary, then the new variable will be created at the top level of the variables list.

## 6.1.2 Data Sources

The **DataSource** is a structural description of data used to render reports. The **DataSource** is like the software interlayer that provides data from the database, convert them and transfer data to the report generator. In other words, the **DataSource** is a description of methods, parameters, and data access methods. It should be noted that each data source uses a certain type of connection and, depending on the type of data source options, may vary. For example, some data sources may not have a field **Query Text** or query parameters. The picture below shows the **New DataSource** dialog:

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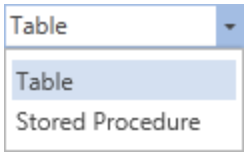
1 A name in the source is specified in the **Name in Source**. In this field you can enter the name or you can click a ... button to display a list of names. The list of names will be displayed in the title of the Name in Source dialog;
2 The filed **Name** specifies the data source name that appears in the report generator;
3 The field **Alias** specifies a data source alias;
4 The Query Control panel. In this panel, there are basic controls for the text query. Also the Rotary button is used to put the Columns and Query Text panel vertically or return them to a horizontal position;
5 The Query Text panel field includes a text query and a menu for selecting the type of a data source. The text field should be filled with a query. In the menu of selecting the type of a data source the following types of data source are available: Table and Stored Procedure. The picture below shows the menu of selecting the type of a data source:




6 The panel contains the basic controls for data columns, and also contains the New Parameter button;
7 The Columns panel contains two fields: data columns, which shows the data columns and query parameters, as well as the property field, which displays the properties of the selected data columns. Each column has: Name and Alias.

#### 6.1.2.1 Queries

**Queries** are text script forms, which are used to extract data from tables and making them available in the report generator. Queries is that they get data from database tables and create them on the basis of a temporary table. The data in the temporary table will be filtered, grouped, sorted and ordered, according to the query parameters. Then, the temporary table is passed to the report generator. Applying queries provides the ability to avoid duplication of data in tables and provides maximum flexibility for searching and displaying data in a database. Most of queries are used to fetch data from the database and transfer them to the report generator. Not all data source types support **SQL** queries. If the type of a data source supports **SQL** queries, the **New Data Source** dialog will display the **Text Query** with the query. The picture below shows a **New Data Source** dialog, where in the **Query Text** field a query for fetching is created.

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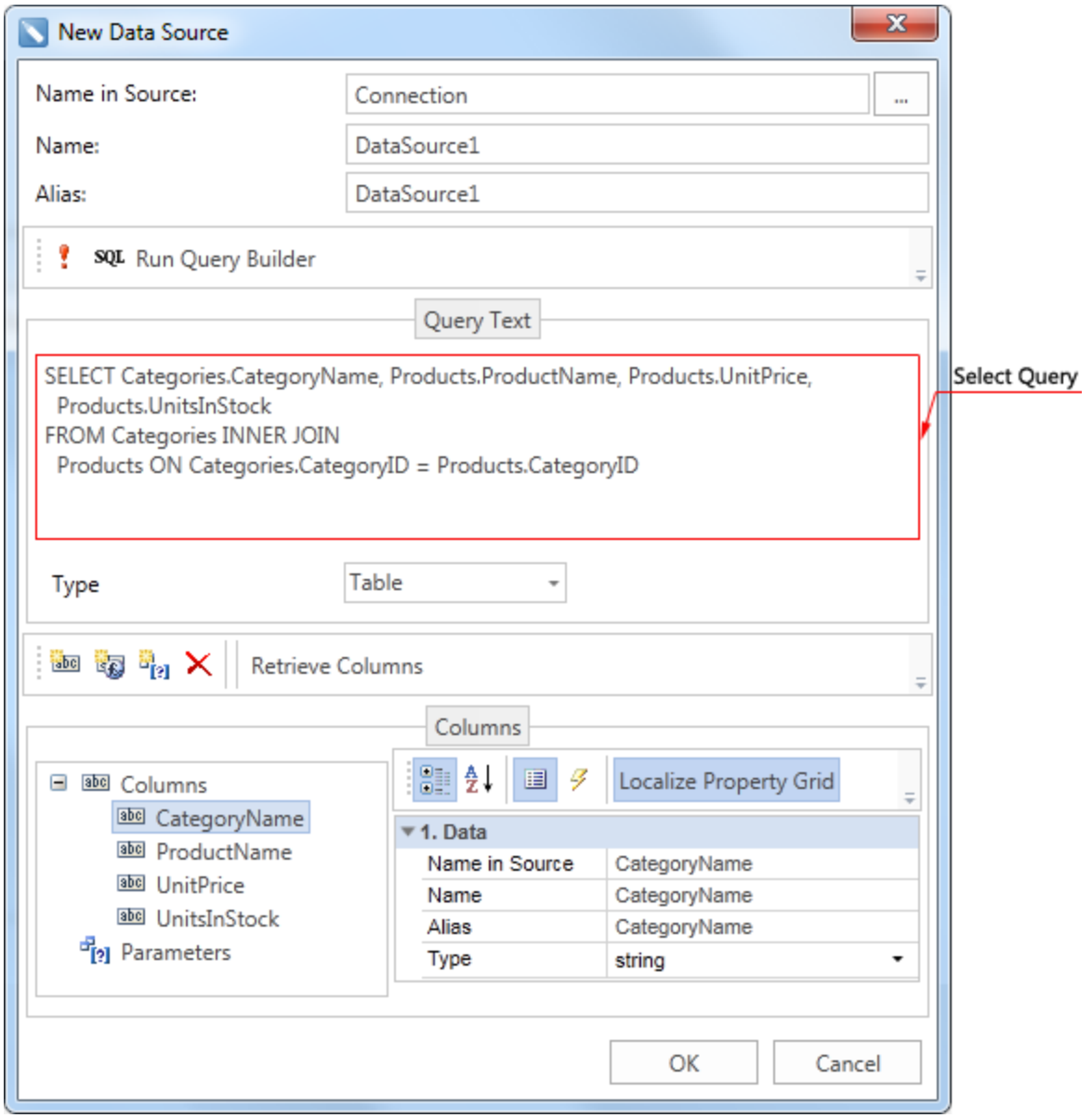


As can be seen from the picture above the **CategoryName** column of the **Categories** data source, and the columns **ProductName**, **UnitPrice**, **UnitsInStock** from the **Products** data source will be selected. The relation between data sources is organized by the key data column **CategoryID**. In order to get the data column, click the **Retrieve Columns** button after building the query. In addition, before a query you can change the type of the data source. The following types are available: **Stored Procedure** and **Table**. A stored procedure is an object of the database that consists of a set of **SQL**-instructions that is compiled once and stored on the server. To run the query, click the **Run** button.

#### 6.1.2.1.1 Parameters

When creating a query it is possible to use the **Parameter** object. This object is designed to send additional conditions for selecting data into a query. For example, if you need a query to use a value

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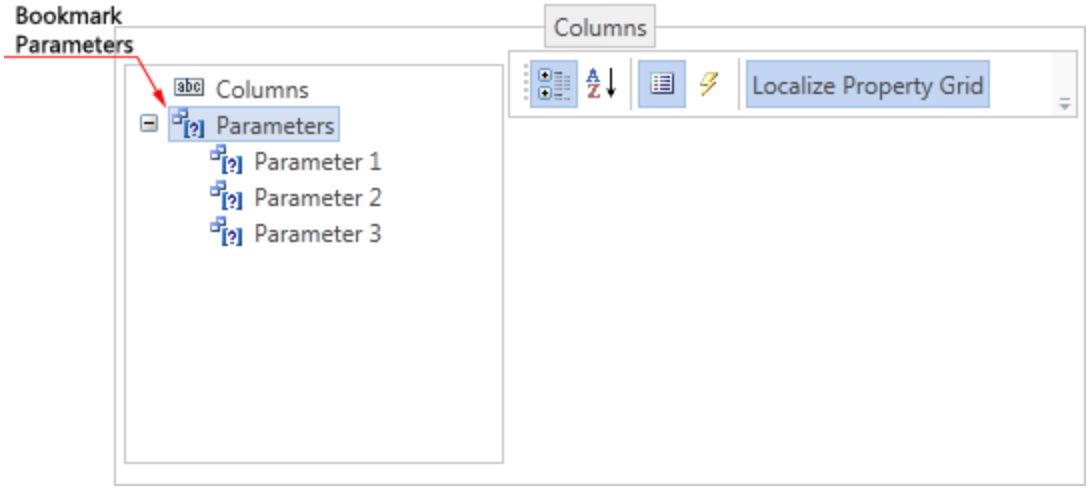
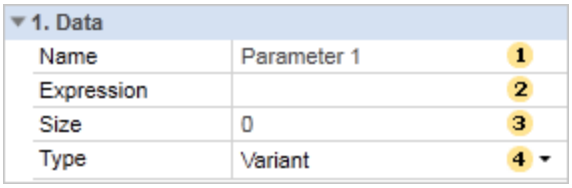
entered by the user each time the query is executed, you can create a query using parameters. The **Parameter** object can only be used with **SQL** data sources. These data sources are typically have the **Text Query** field. To insert a parameter in the query, you must click the **New Parameter** button. The picture below shows the toolbar, on which the **New Parameter** button can be found:

After clicking this button a new parameter will be created. This parameter will be displayed in the **Parameters** tab in the **Columns** panel. The picture below shows an example of the **Columns** panel with the **Parameters** tab:




Each parameter has a property with which you can change its settings. The picture below shows the panel of parameters properties:




1 The **Name** property. Used to change the parameter name. This feature works only for named parameters.
2 For each parameter you can specify a value that is used to populate the parameter. The value can be an expression, const, variable, etc. For example, {x + y} or {variable}.
3 The **Size** property provides an opportunity to change the size of the type used in the parameter. Keep in mind that each type in the database has its own size. Therefore, when using a query, you must specify the correct type size. For some adapters, database size may be omitted, but generally if the size is not specified or is incorrect, then the queries using these parameters will be performed incorrectly.
4 Use the Type property in order to change the parameter type. The values of the properties are in the drop-down list, and are a list of types used in the parameters for a particular database. It should

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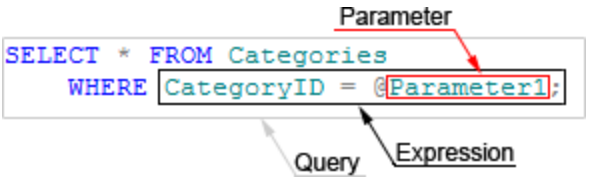
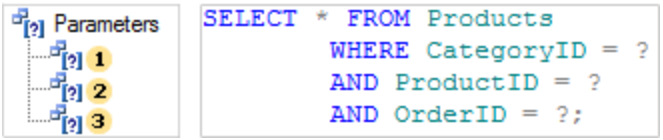
be noted that a list of types differs depending on the database.

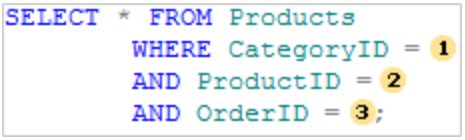
Also, you must specify the parameter in the query. Here is an example of schematic position of parameters in the query:




As a rule, the **@** symbol is used to specify a parameter in the query. The **@** symbol is used with named parameters, i.e. after the **@** symbol goes the name of the parameter. But in some databases (for example in **OleDB**), the **@** symbol cannot be perceived by the adapter and database queries with parameters will not work. In this case, you can use unnamed parameters. For specifying unnamed parameters in the query the **?** character is used. After the **?** character the parameter name is not specified. In this case, the order of parameters in the **Parameters** tab is important. As indications of the **?** characters in the query, parameters will be taken sequentially from the **Parameters** tab in the top-down direction. Consider the following example. Suppose there are three parameters that are specified in the query:




Since, in this case, unnamed parameters (marked with **?**) are used, then, when running, the query parameters will be taken from the **Parameters** tab in the top-down order. The picture below schematically presents a comparison of parameters of the **Parameters** tab to the parameters in the query:




In this case, the parameters used in this example, can have names, but when using the **?** character they play no role. Once a query to parameters is created and executed, the parameters will also be displayed in the **Dictionary**, in the created data source in the **Parameters** tab. The picture below shows an example of the **Dictionary** panel and placing parameters in it:

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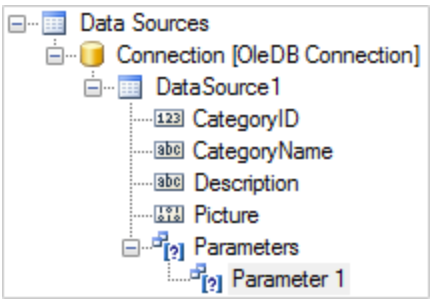
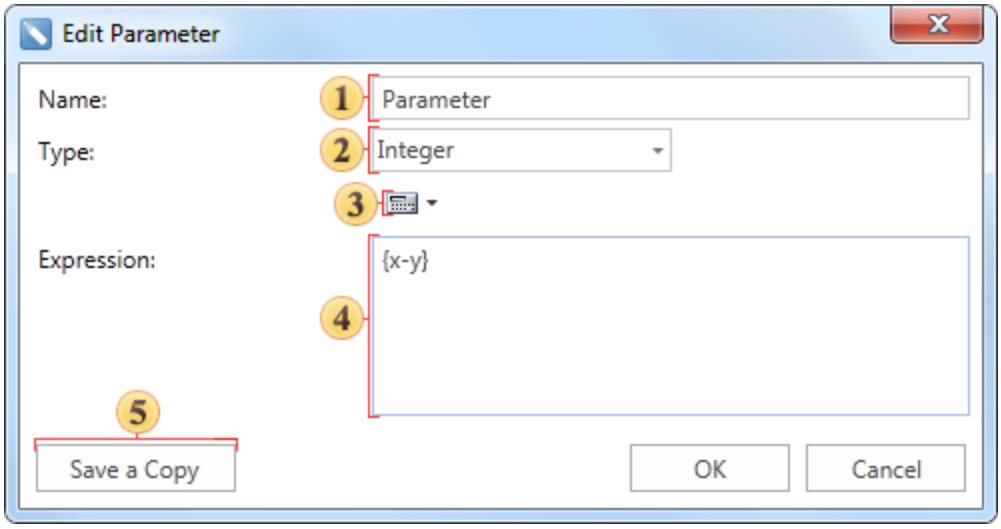



To edit a parameter separately from the data source, select the **Parameter** in the data dictionary and click **Edit** on the toolbar in the dictionary or select **Edit** item in the context menu of the selected parameter. After pressing the button or selecting **Edit**, the user will be shown the **Edit Parameter** dialog, in which you can edit the selected parameter. The picture below shows an example of the **Edit Parameter** dialog:




1 This field displays the parameter **Name**, which can be edited;
2 This field displays the **Type** of the parameter, which can be edited;
3 The **Dictionary** button contains a drop-down menu that displays the structure of the data dictionary. In this menu you can select data columns, business objects, or system variables that will be added to the expression of calculation of calculated data columns;
4 The **Expression** field displays used expressions in a query parameter, which, if necessary, can be edited;
5 The **Save a Copy** button saves a copy of the edited parameter by assigning the **Copy** postfix in the parameter name.

### 6.1.2.1.2 Query Builder

The **Query Builder** is a visual component that allows creating queries visually. Creating a query using a designer allows complete controlling the query parameters and building of complex conditions of data selection using simple visual user interaction. The picture below shows the **Query Builder** dialog:

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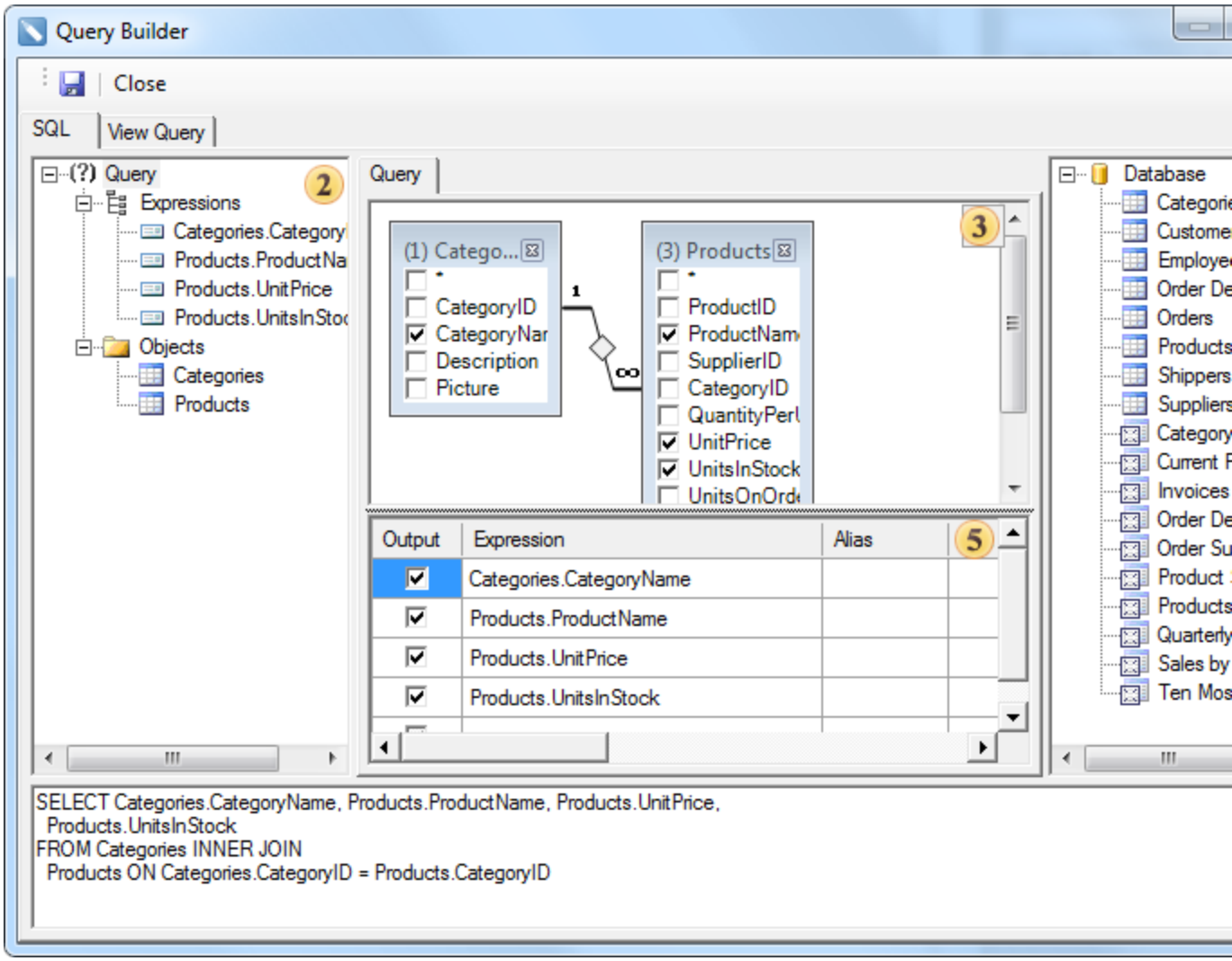


1 **Control Panel**. Contains the Save button (saves the query) and the Close button (closes the query builder);
2 **Query tree panel**. This panel shows the query tree.
3 **Query design panel**. This panel is an area in which the query is visually represented. In this area, you can determine the initial database objects and derived data sources, as well as define relations between data sources, configure the data source properties, and references.
4 bar databases. This panel displays the database and included in her data sources;
5 Table panel. This panel shows a table in which rows are data columns used in the query and columns are operations. In this table, you can define data columns, aliases, sorting type, sorting order, grouping, criteria.
6 This panel displays a query built on the panel 3 as a code.

The Query Builder contains the **View** tab, which provides an opportunity to display data columns selected by the query. There operations in the query should also be taken into account. The picture below shows the **View** tab in the Query Builder:

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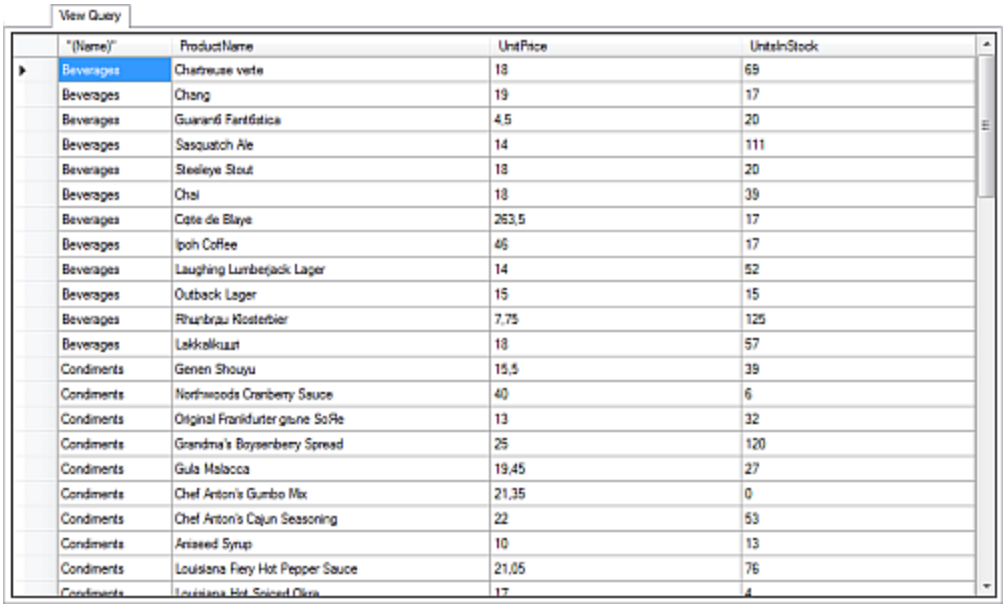
View Query

| "(Name)" | ProductName | UnitPrice | UnitsInStock |
|---|---|---|---|
| Beverages | Chartreuse verte | 18 | 69 |
| Beverages | Chang | 19 | 17 |
| Beverages | Guaraná Fantástica | 4,5 | 20 |
| Beverages | Sasquatch Ale | 14 | 111 |
| Beverages | Steeleye Stout | 18 | 20 |
| Beverages | Chai | 18 | 39 |
| Beverages | Côte de Blaye | 263,5 | 17 |
| Beverages | Ipoh Coffee | 46 | 17 |
| Beverages | Laughing Lumberjack Lager | 14 | 52 |
| Beverages | Outback Lager | 15 | 15 |
| Beverages | Rhönbräu Klosterbier | 7,75 | 125 |
| Beverages | Lakkalikööri | 18 | 57 |
| Condiments | Genen Shouyu | 15,5 | 39 |
| Condiments | Northwoods Cranberry Sauce | 40 | 6 |
| Condiments | Original Frankfurter grüne Soße | 13 | 32 |
| Condiments | Grandma's Boysenberry Spread | 25 | 120 |
| Condiments | Gula Malacca | 19,45 | 27 |
| Condiments | Chef Anton's Gumbo Mix | 21,35 | 0 |
| Condiments | Chef Anton's Cajun Seasoning | 22 | 53 |
| Condiments | Aniseed Syrup | 10 | 13 |
| Condiments | Louisiana Fiery Hot Pepper Sauce | 21,05 | 76 |
| Condiments | Louisiana Hot Spiced Okra | 17 | 4 |

Click the **Save** button to add the created query text into the **Query Text** field.

### 6.1.2.2 Creating Data Source

It is possible to create a **New Data Source** and get data columns using a wizard or without using it. When creating a data source without using the wizard, you should create a query and, using the **Retrieve Columns** button, get data columns from the database. When creating a new data source using the wizard, the wizard itself gets data columns from the database. Consider these two modes of creating a data source in more detail.

**Creating a data source without using the wizard**

Consider creating a new data source via the **OleDB** connection. To create a new data source, you must create a **New Connection**. For creating a new database connection, call the **New Connection** command. This command can be selected in the **New Item** menu item or the context menu on the **Dictionary** panel. After selecting this command the **Select Type of Connection** dialog will be invoked, in which you should define the type of the connection. The picture below shows the **Select Type of Connection** dialog:

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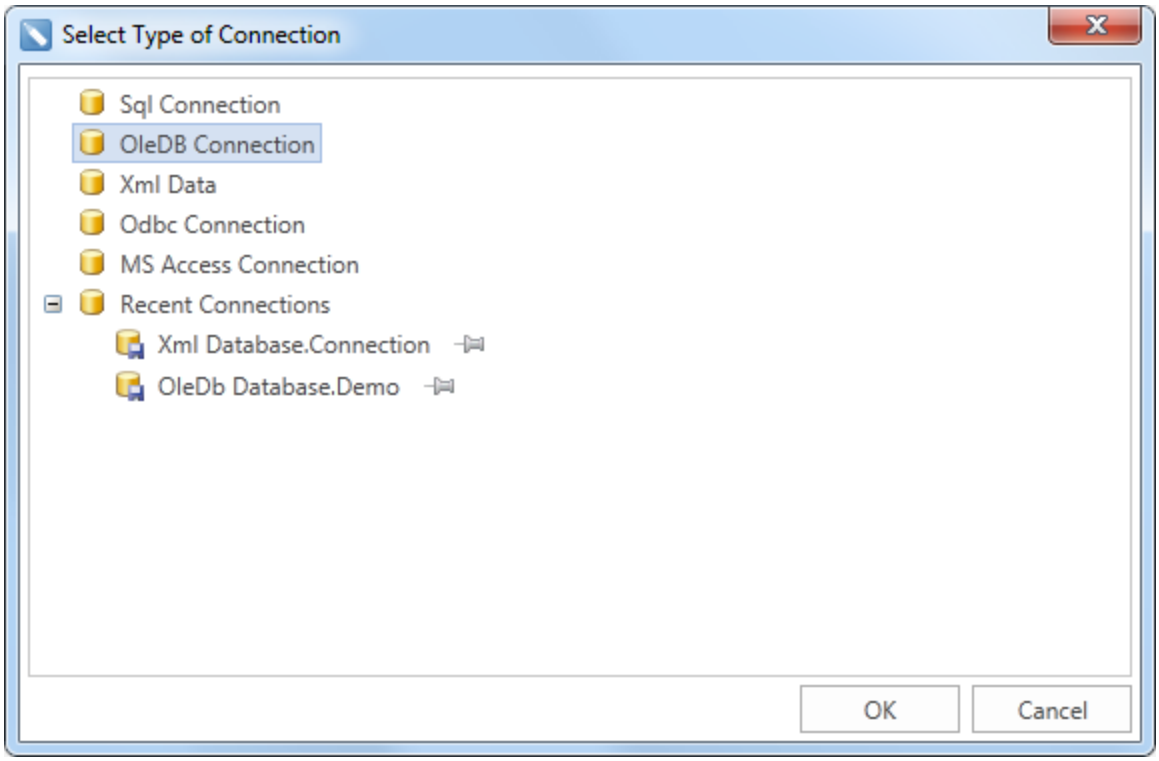
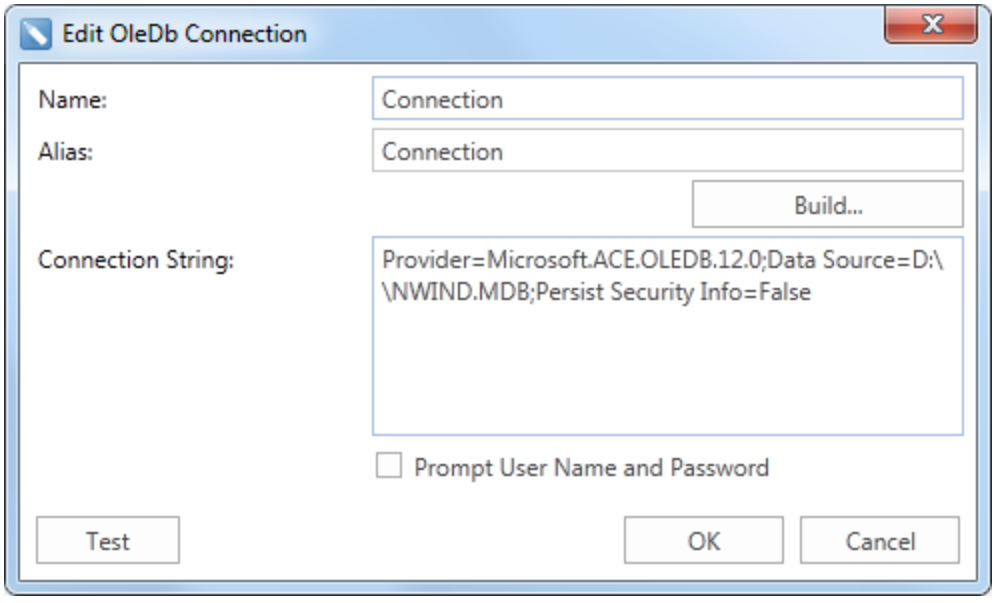



In this case, the **Connection** object describes the settings to access databases via the **OleDB** driver. After you click **OK**, a **New OleDB Connection** is open, in which it is necessary to fill three fields. In the **Name** field specify the connection name, which appears in the report generator. In the **Alias** field specify the name of the new connection, which is visible to the user. In the **Connection String** define the connection string to connect to the database. The picture below shows a window to create a new **OleDB** connection:




In order to check the connection string, press the **Test** button. In this case, if the connection string is

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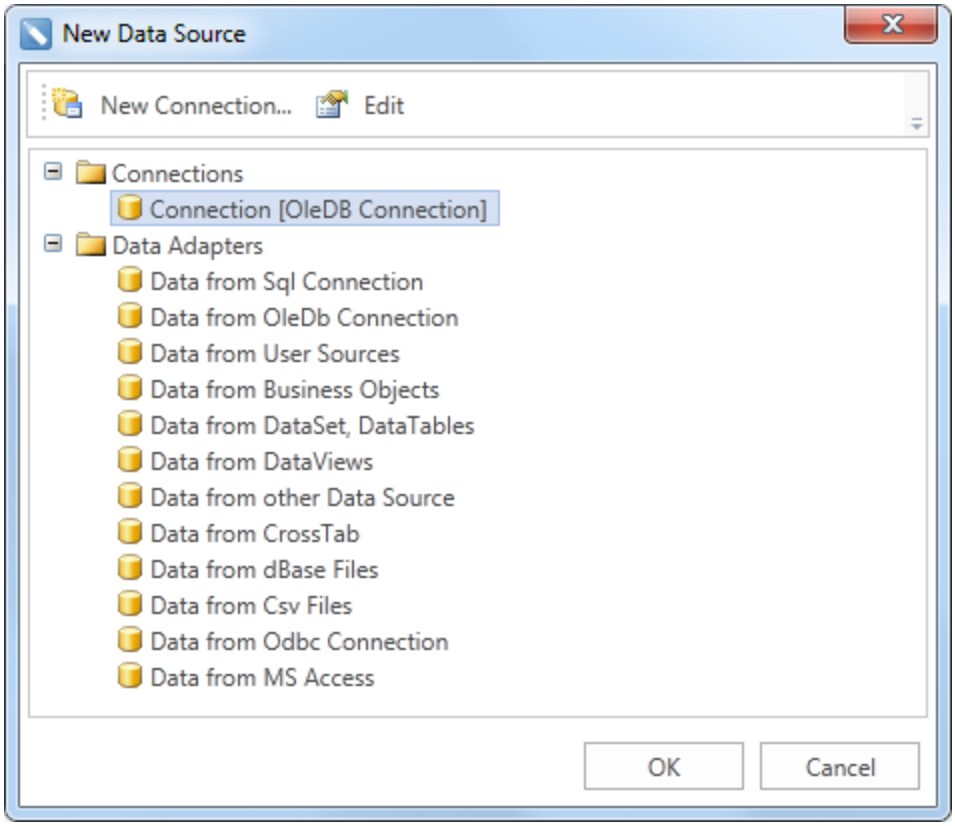
correct, then the user will be shown a **Connection was successful** window. If the connection string contain errors, then the user will be shown a window containing the error text that the database server returns in response to an attempt to create the connection. You can also use the create connections wizard clicking the **Build...** button, which provides the ability to define the connection settings be means of the dialogue. Not all types of connections are supported by the wizard. After clicking **Ok**, a new connection is created. The next step is to create a new data source. To do this, you should select the **New Data Source** command from the **New Item** menu or the context menu on the **Dictionary** panel. Then, in the first dialog form of **New Data Source** select the type of connection and press the **Ok** button. The picture below shows the first dialog form of **New Data Source**:




It should be noted that it is possible to call a new connection dialog from the **New Data Source**. Just click the **New Connection...** button. After selecting the connection type in the **Select Data** dialog, click the **New Query**. The picture below shows the **Select Data** dialog:

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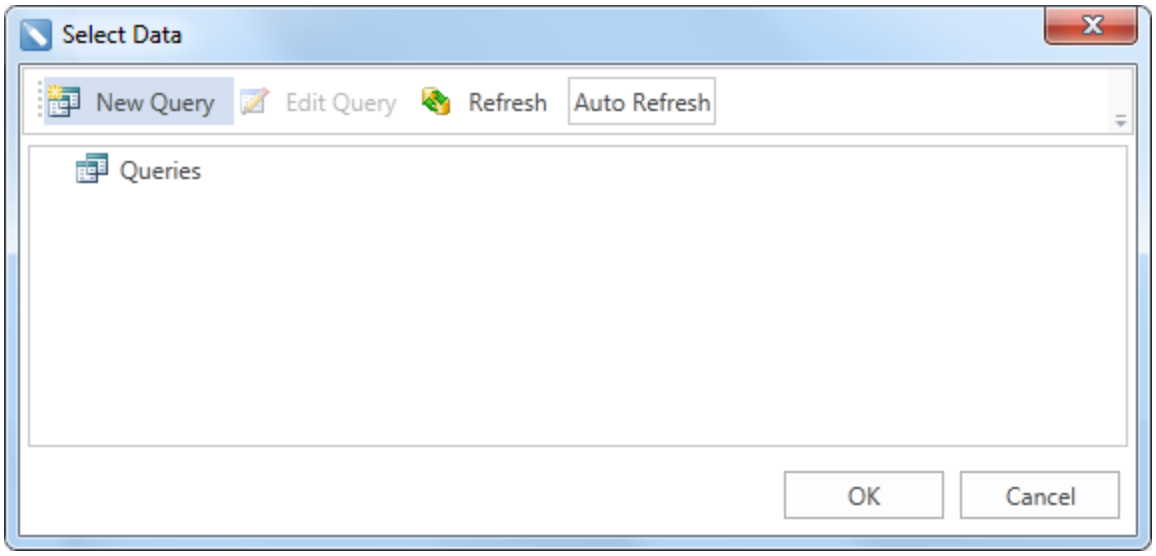


Then in the second dialog form of the **New Data Source** define parameters such as the **Name in Source**, **Name**, **Alias**. Also in the **Query Text** it is necessary to generate a database query and execute it. If the request is successful, using the **Retrieve Columns** button it is possible to get a data column from the database. The resulting columns will be displayed in the **Columns** field. The following settings such as the **Name in Source**, **Name**, **Alias** and **Type** can be set for any selected column. You can also add or remove a data column. To add a column, you must click **New Column** or **New Calculated Column**. To delete a column, click **Delete**. The picture below shows the **New Data Source** dialog:

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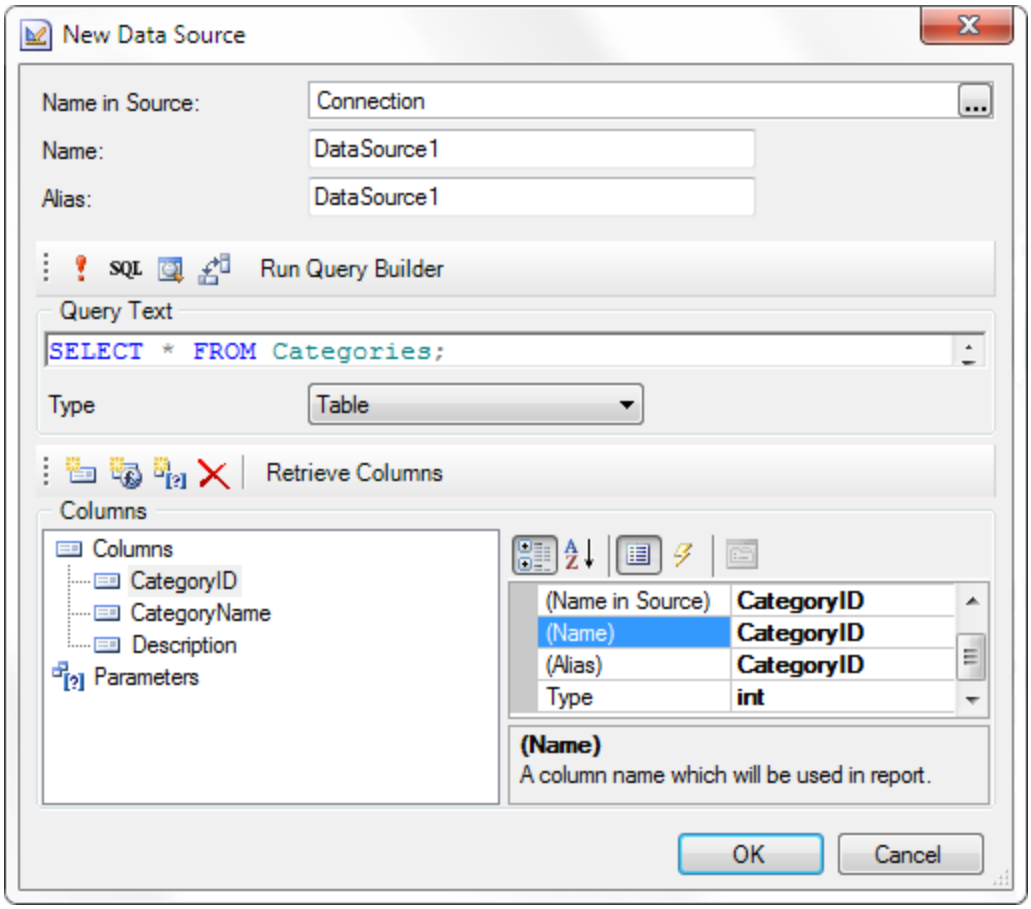


After clicking **Ok**, the new data source **DataSource1** will be created. This data source will contain the following columns: **CategoryID**, **CategoryName**, **Description**.

**Creating a data source using the wizard**

Consider how to create a new data source using the wizard, i.e. automatically. In this mode, it is possible to create more than one data source at one time. The **Connection** object to the database via the **OleDB** driver has already been created. The next step is to create a data source. To do this, select the connection type in the **New Data Source** dialog. The picture below shows the **New Data Source** dialog:

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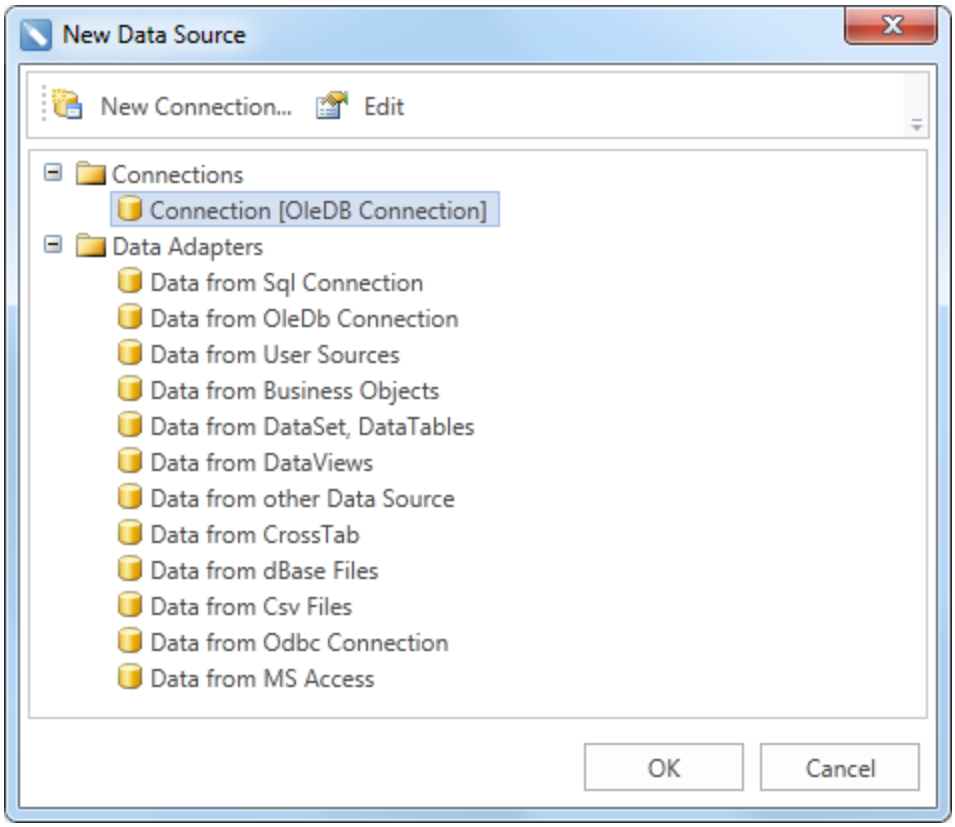


Press the **Ok** button in the **New Data Source** dialog to invoke the **Select Data** dialog. To get a list of tables from the database, it is necessary to click the **Refresh** button in this dialog. You can also enable/ disable **Auto Refresh** by checking/unchecking the flag. If the flag is checked, the wizard will automatically update the list of data tables. The picture below shows the **Select Data** dialog:

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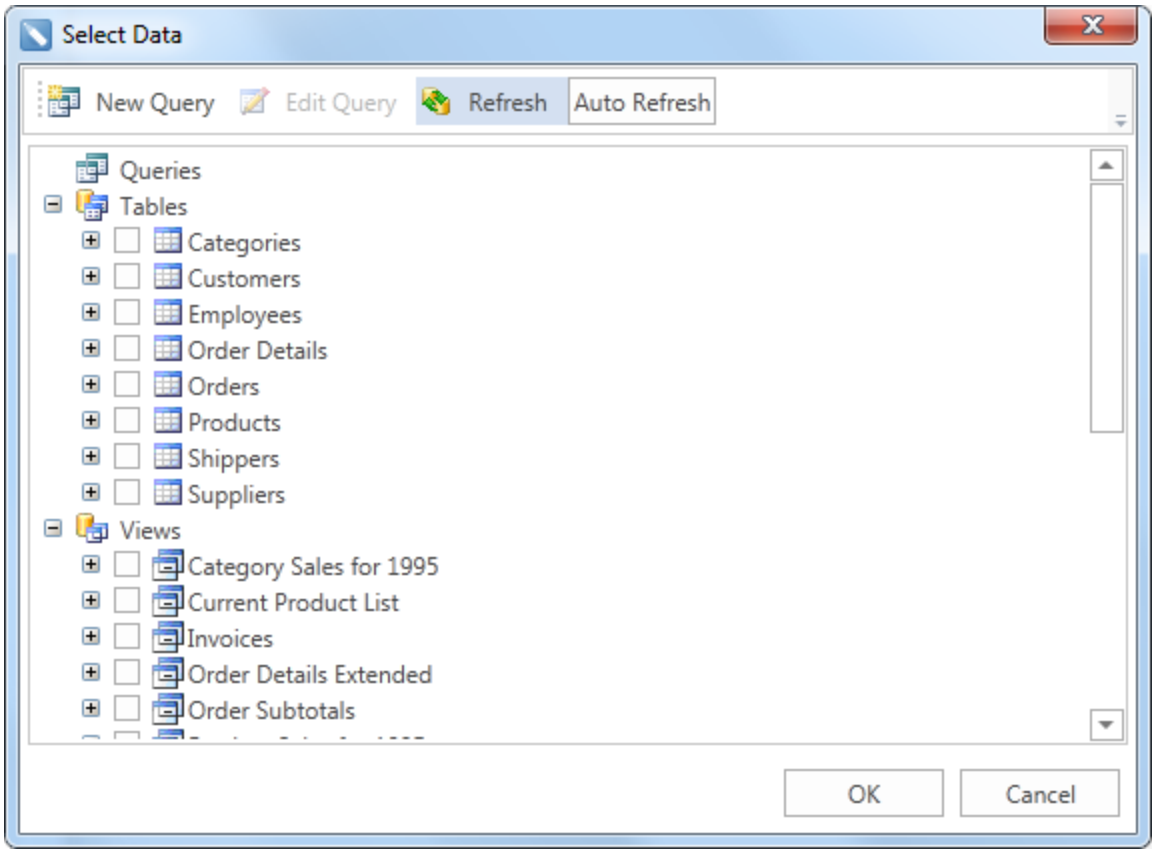


The list in this dialog is represented as the tabs that are positioned hierarchically. The main tab is a category (in this example: Queries, Tables, Views, Procedures). Select the data table to create a new data source. It is also possible to exclude columns of data tables from the prospective data source. To do this, you must open the selected table and remove the check mark beside the column name to be deleted. By default, if you select a data table, all the columns in this table are marked with flags, ie will be added to a new data source. Each selected data table will represent a different data source, ie, one table - one source. The figure below presents the Select Data (Select Data) with the selected data tables and columns marked by the data:

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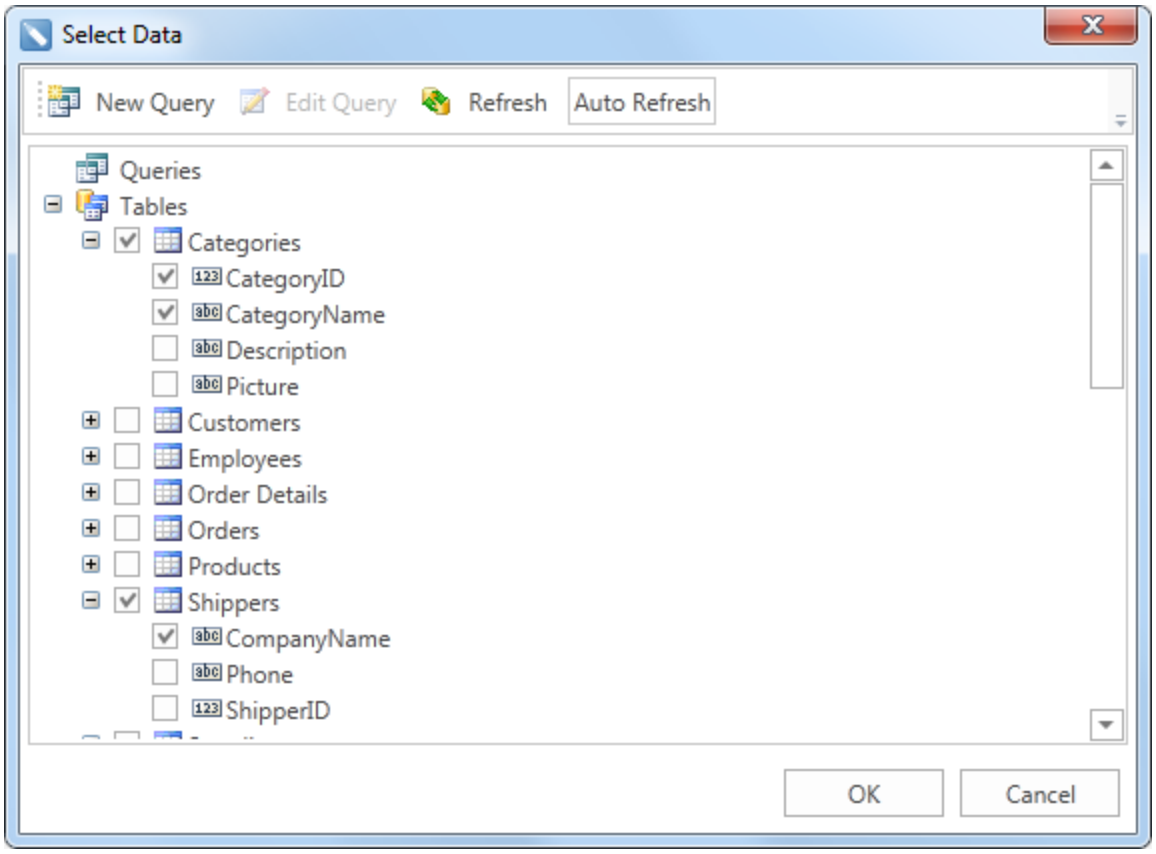
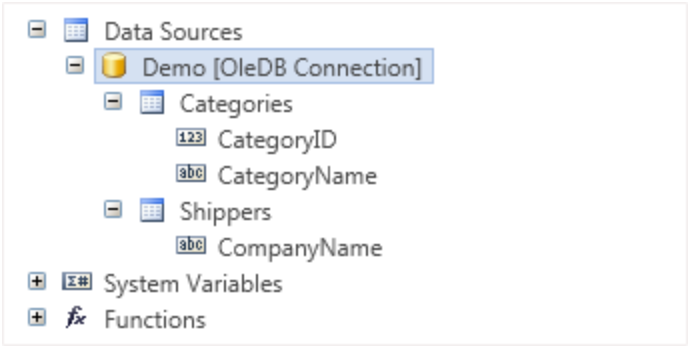



After clicking Ok, a data source **Categories** with data columns **CategoryID**, **CategoryName** will be created and the data source **Shippers** with the data column **CompanyName**. The picture below shows created data sources in the **Dictionary**:




**Editing Data Source**

Any created data source can be edited. To do this, select the data source, click the **Edit** button on the toolbar in the **Dictionary**, or select **Edit** in the context menu of the data source. After clicking the button or selecting **Edit** from the context menu, the user will be shown the **Edit Data Source** dialog. In this dialog the same tools and fields, as well as in the second dialog form of the **New Data Source** dialog are placed.

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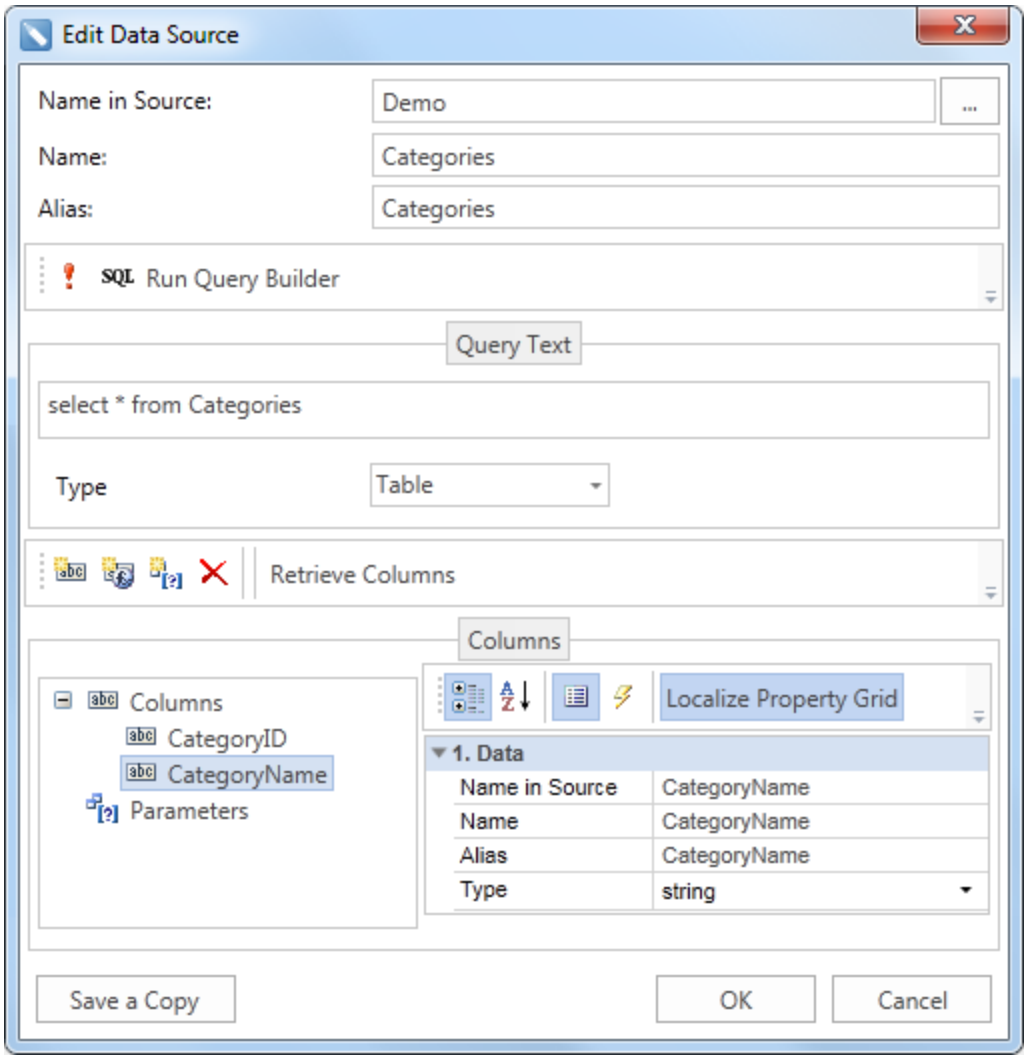


Depending on the type of the data source, the **Query Text** field may absent in this dialog, because not all connections support **SQL** queries. All changes will be applied after clicking **Ok**.

### 6.1.2.3 Creating and Editing Data Columns

**Creating data columns**

To create a new column select the data source, which will be added to the data column, and select **New Column...** in the **New Item** menu or the context menu of the selected data source. After selecting this option the **New Column** dialog will be invoked. In this dialog you should specify new columns. The picture below shows a **New Column** dialog:

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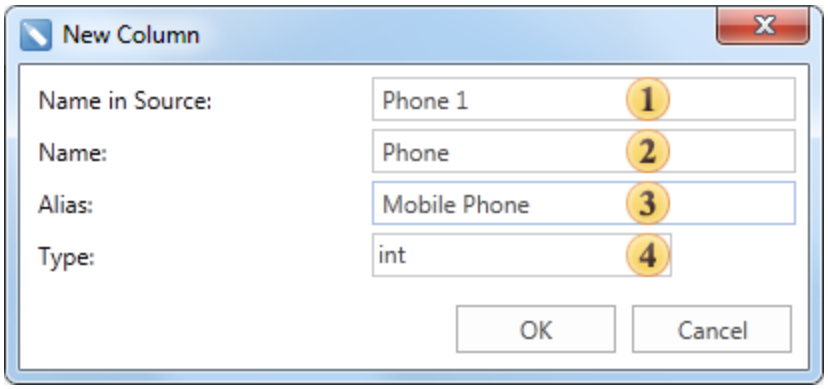
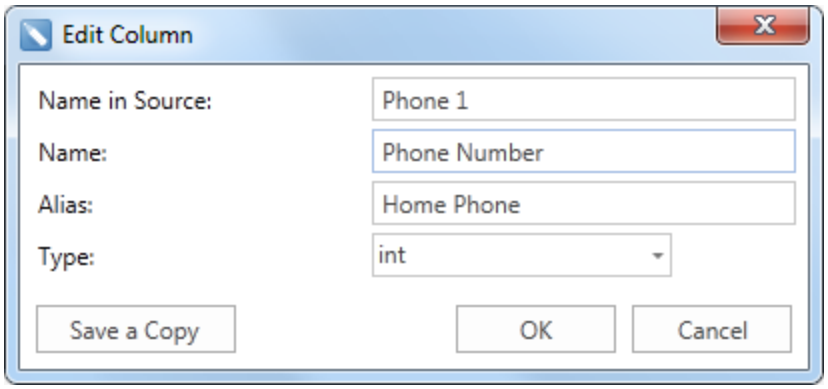



1 The **Name in Source** field. Specifies the name in the data source (not in the report).
2 The column **Name**. Used to call the new column in the report.
3 The column **Alias**. Specified in the Alias.
4 The **Type** field. Used to select the type of data that will be contained in the new column.

After clicking **Ok**, a new data column in the selected data source will be created. It should be noted that the data column generated this way is only a description of the (virtual) data columns and it does not contain real data. If the database does not have this column, then when calling the database, the report generator will produce an error.

**Editing data columns**
The data column can be edited. To do this, you must select **Edit** in the context menu of the selected column, or click the **Edit** button on the toolbar in the data dictionary. After that, the user will be shown the **Edit Column** dialog, where you can change settings such as **Name in Source**, **Name**, **Alias** and **Type** of the edited column. Press **Ok** to apply changes. The picture below shows the **Edit Column** dialog:




### 6.1.2.4 Calculated Data Column

The calculated data column is calculated on the base of an expression that can be used by other data columns into an existing data source. The expression can be a name of the non-calculated column, constant, function, or any combination, connected to one or more operators. The expression cannot be a nested query. Unless otherwise indicated, the calculated data column is a virtual column that is not

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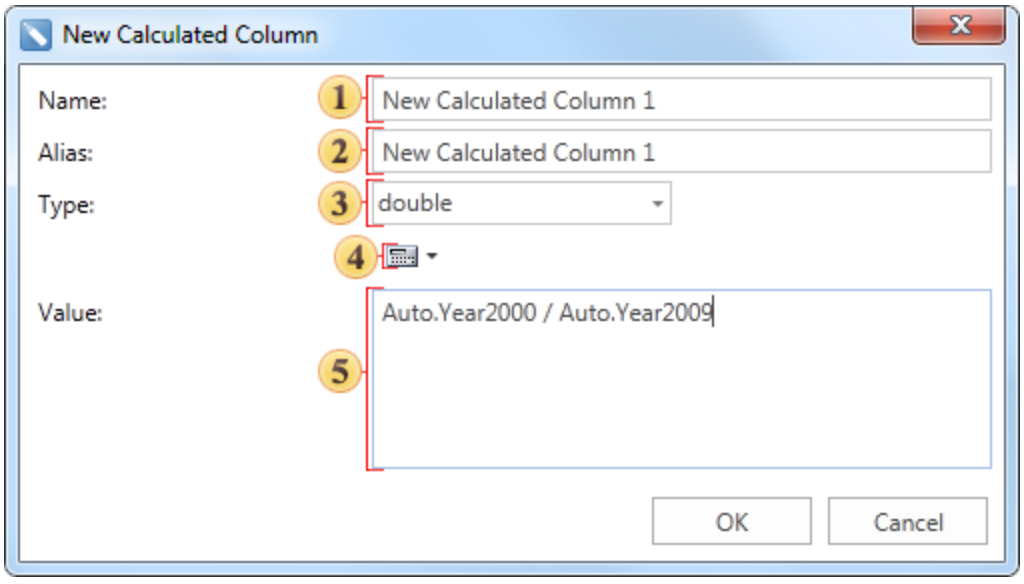
stored physically in the data source. The values of the calculated data column are updated each time you access to them in the query. Also, the values of calculated column are updated every time you change the columns included into the calculated expression. Before you add a calculated column, you must connect at least one data source. Consider the creation of calculated data column in the data source Auto. The following columns are in this data source: Rank, Country, Year2000, Year2005, Year2009. Columns Year2000, Year2005, Year2009 contain data about cars produced in 2000, 2005, and 2009. Create a calculated data column, which will contain data on the growth of production cars in 2009 relative to 2000, the results are displayed in percentages. The picture below shows the data column of Year2000 and Year2009:

| Year2000 | Year2009 |
|---|---|
| 2069069 | 13790994 |
| 10140796 | 7934516 |
| 12799857 | 5711823 |
| 5526615 | 5209853 |
| 3114998 | 3512916 |
| 1681517 | 3182617 |
| 801360 | 2632694 |
| 3032874 | 2170078 |
| 3348361 | 2049762 |
| 1935527 | 1557290 |

To create a new calculated column you should call the **New Calculated Column** dialog and fill in the dialogue form. The dialog can be called from the context menu of data source or from the **Actions** menu. The picture below shows the **New Calculated Column** dialog:




1 The **Name** column is used to call this calculated column in the report. Enter in the **Name**.
2 The **Alias** column is used as a prompt. Enter in the **Alias**.
3 The **Type** field provides the ability to choose the data type that will contain the new calculated column.
4 The **Dictionary** button contains a drop-down menu that displays the structure of the data dictionary.

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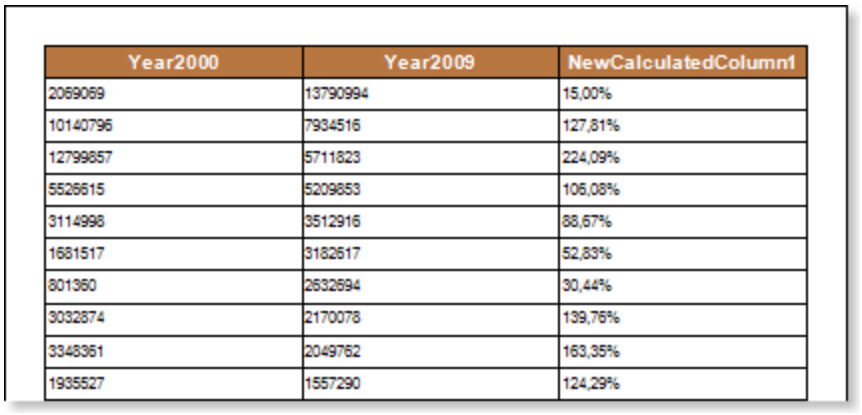
In this menu you can select data columns, business objects, or system variables that will be added to the calculation of expression of the calculated data column.
5 In **Value** filed is used to define an expression for calculating the values of the new calculated data column.

In this example, the calculation expression will contain data columns Year2000 and Year2009 from the data source Auto, and the type of data in a new calculated column will be double. After the column is created, you should place a text component with a reference to this data column. In this example, the text component will contain a link **{Auto.NewCalculatedColumn1}**. As the result of calculations is necessary to be displayed in the percentage, then this text component should change the format, i.e. set the **Percentage** format. Below is a report with the calculated data column:



| Year2000 | Year2009 | NewCalculatedColumn1 |
|---|---|---|
| 2069069 | 13790994 | 15,00% |
| 10140796 | 7934516 | 127,81% |
| 12799857 | 5711823 | 224,09% |
| 5526615 | 5209853 | 106,08% |
| 3114998 | 3512916 | 88,67% |
| 1681517 | 3182617 | 52,83% |
| 801360 | 2632694 | 30,44% |
| 3032874 | 2170078 | 139,76% |
| 3348361 | 2049762 | 163,35% |
| 1935527 | 1557290 | 124,29% |

### 6.1.2.5 Data From Other Data Source

In the report generator you can create a data source based on existing data sources. The Data from other Data Source provides analogical features like the query to the database. When creating a data source using the visual interface, in the process of creating a data source, to perform sorting, grouping, filtering, and calculating of totals using aggregate functions. Consider the example of creating data from other data sources. Suppose there is a Master-Detail report, to which each category corresponds a number of products. The picture below shows a page of the Master-Detail report (shown partially):

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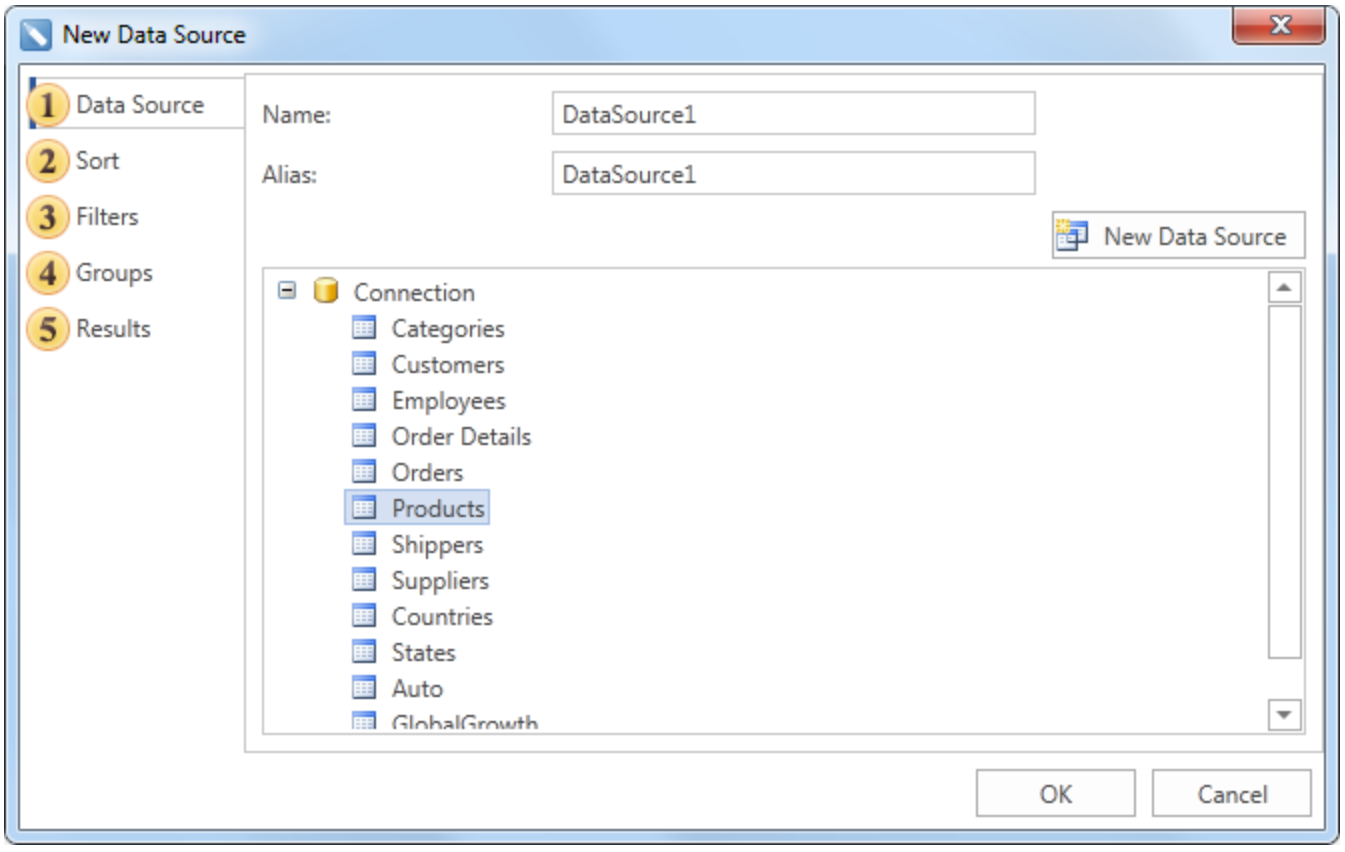
Beverages

| ProductName | UnitPrice |
|---|---|
| Chai | 18 |
| Chang | 19 |
| Guaraná Fantástica | 4,5 |
| Sasquatch Ale | 14 |
| Steeleye Stout | 18 |
| Côte de Blaye | 263,5 |
| Chartreuse verte | 18 |
| Ipoh Coffee | 46 |
| Laughing Lumberjack Lager | 14 |
| Outback Lager | 15 |
| Rhönbräu Klosterbier | 7,75 |
| Lakkalikööri | 18 |

As can be seen from the picture above, the name of the category, product name (related to this category) and the price of the product are displayed in the report. If you want to create a report that displays the name of the category and the total value of all products included in this category, it can be done in various ways. But the easiest way is to create a data source based on another data. To do this, select **Data from other Data Source** item in the **New Data Source** dialog and setup the data source you create. The picture below shows the second form of the **New Data Source** dialog:




As can be seen from the picture above, the process of creating data from other sources includes the

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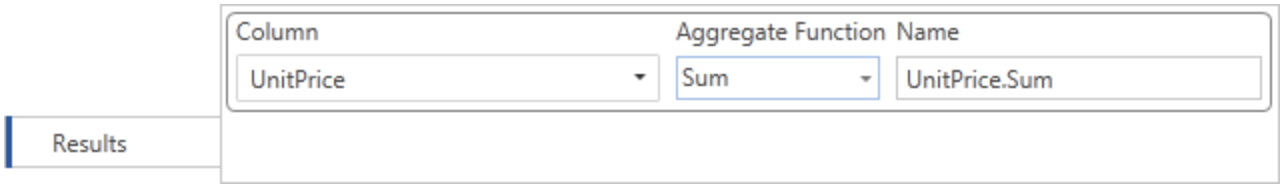
following steps:

1 **Data Source**. On this stage, you must specify the Name of a new data source and its Alias. In our example, the alias name and the data source name is DataSource1. You should also select a data source on which to setup a new one. In this case, the selected data source Products. This step is optional.
2 Sorting criteria are specified in the Sort step. On this stage you should specify the data column to be used for sorting, and to select the sorting direction. This step is optional.
3 Set conditions of filtering data in a new data source on stage Filters. To filter the data you need to add a filter to specify an expression or a condition that will be filtered. This step is optional.
4 To specify the conditions of grouping data in a new data source, you can do the step Groups. To group the data you should indicate the data column by which the data will be grouped, and select your destination of groups location. Data column, by which grouping will be performed will present in the new data source. In this example, using the relation, between data sources Categories and Products, indicate grouping by the data column CategoriesName, which contains the names of categories. This step is optional.
5 The last step is Results. In this step, you can make the calculation on a data column with aggregate functions. The picture below shows the Results tab:




As can be seen from the picture, this tab should indicate the following parameters:
Select the data column in the **Column** field that will be present in the new data source or from which data will be collected to calculate the aggregate. This field is mandatory. For example, the data column **UnitPrice** is selected. It contains data on the products prices.
The **Aggregate Function** menu is a list of aggregate functions that can be used to calculate the selected data columns. Aggregate functions can be omitted in this case, the data column will contain data, which are in the data column, which is the basic one. In this example, select the aggregate function **Sum**, which summarizes the data.
In the **Name** field specify the column name, which is used to refer to this calculated column in the report.

Now for the report rendering the data source **DataSource1** can be used, which contains two data columns: **CategoryName** and **UnitPrice.Sum**. The picture below shows a report, based on data from a data source **DataSource1**:

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| CategoryName | UnitPrice.Sum |
|---|---|
| Beverages | 455,75 |
| Condiments | 276,75 |
| Confections | 327,08 |
| Dairy Products | 287,3 |
| Grains/Cereals | 141,75 |
| Meat/Poultry | 324,04 |
| Produce | 161,85 |
| Seafood | 248,19 |

As can be seen in the picture above, each category corresponds to the total value of all products included in this category.

### 6.1.2.6 Data From Cross-Tab

In the report generator Stimulsoft Reports you can create a data source based on cross-table, i.e. you can create a new source, which columns will be columns of the rendered cross-table, and strings are the strings of the rendered cross-table. Consider an example of creating a data source based on the cross-table. The picture below shows a report page with the rendered cross-table:

| Products | CategoryName | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| ShipCountry | Beverages | Condiments | Confections | Dairy Products | Grains/Cereals | Meat/Poultry | Produce | Seafood | Total |
| Austria | | 21,35 | 12,75 | 32 | | | | 25,89 | 91,99 |
| Belgium | | | 81 | 36,5 | | | | | 117,5 |
| Brazil | 50 | 34,05 | 20 | 12,5 | | 129,8 | | 21,65 | 268,00 |
| Canada | | | 9,5 | | | | | | 9,5 |
| Finland | 46 | | | 38 | | | | | 84 |
| France | | | 16,25 | 77,3 | 54,5 | 39 | | | 187,05 |
| Germany | 65 | 28,5 | 63,3 | | 9 | | 121,85 | 49,4 | 337,05 |
| Ireland | | 47 | | | | | | | 47 |
| Italy | | 17 | 12,5 | | | 7,45 | | | 36,95 |
| Mexico | | | 10 | | 7 | | | 94,5 | 111,5 |
| Spain | | | 9,2 | | | | | | 9,2 |
| Sweden | 7,75 | 63,35 | | | | | | 15 | 86,10 |
| Switzerland | 23,5 | | 17,45 | 55 | | 24 | 10 | 19 | 148,95 |
| UK | | 10 | | | 33,25 | | | 9,5 | 52,75 |
| USA | 263,5 | 40 | | | 38 | | 30 | 13,25 | 384,75 |
| Venezuela | | 15,5 | 75,13 | 36 | | 123,79 | | | 250,42 |
| Total | 455,75 | 276,75 | 327,08 | 287,3 | 141,75 | 324,04 | 161,85 | 248,19 | 2222,71 |

To create a data source based on cross-table, you should call the **New Data Source** dialog and select the **Data from CrossTab** item. The picture below shows the **New Data Source** dialog:

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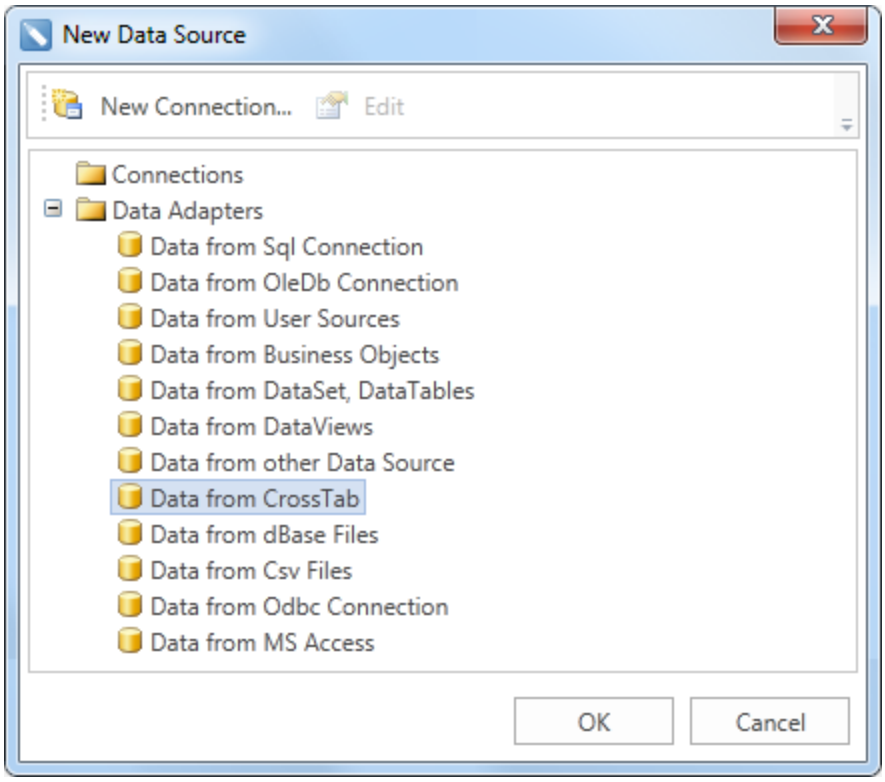
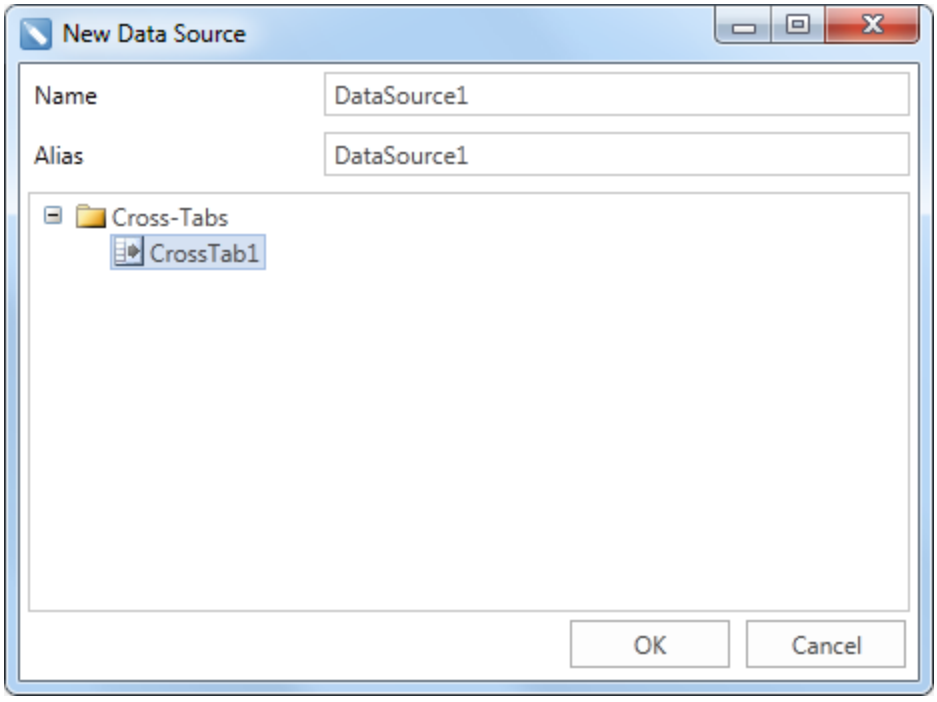



After clicking **Ok**, in the next dialog form **New Data Source**, you should indicate the **Name** of the new data source and cross-table, which will be used as a basis. You can also specify the **Alias** of the new data source. The picture below shows the second form of the **New Data Source** dialog:

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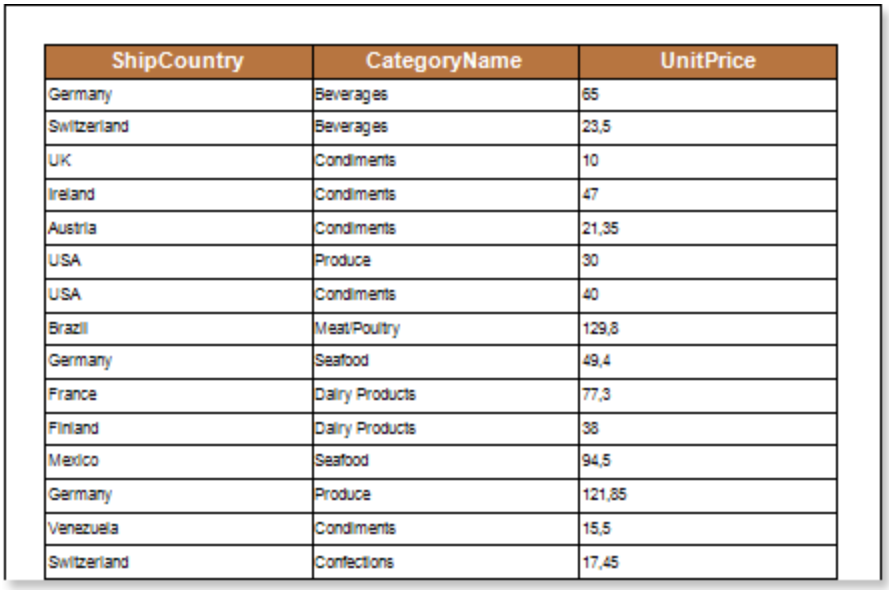
After clicking **Ok**, you will create a data source **DataSource1**, which will contain the columns **ShipCountry**, **CategoryName**, **UnitsPrice**. The data source on the base of the cross-table is a virtual data source that does not contain real data. Filling this source occurs when rendering the cross-table. Therefore, a report that will use this data source, for example, to render a report with the list, must contain the cross-table on the base of which the data source was created. For example, create a report with the list. Put the cross-table in the first report page, and in the second page, put the **DataBand** with text components, which will contain the expressions **{DataSource1.ShipCountry}**, **{DataSource1.CategoryName}**, **{DataSource1.UnitsPrice}**. The picture below shows a part of the report page with the rendered list:



| ShipCountry | CategoryName | UnitPrice |
|---|---|---|
| Germany | Beverages | 65 |
| Switzerland | Beverages | 23,5 |
| UK | Condiments | 10 |
| Ireland | Condiments | 47 |
| Austria | Condiments | 21,35 |
| USA | Produce | 30 |
| USA | Condiments | 40 |
| Brazil | Meat/Poultry | 129,8 |
| Germany | Seafood | 49,4 |
| France | Dairy Products | 77,3 |
| Finland | Dairy Products | 38 |
| Mexico | Seafood | 94,5 |
| Germany | Produce | 121,85 |
| Venezuela | Condiments | 15,5 |
| Switzerland | Confections | 17,45 |

When rendering a report, the report generator fills created data source **DataSource1** with data from the cross-table and display the data as a list.

### 6.1.3 Relation

Relation is created between data sources and defines how should data from these sources be bind. When creating a relation, keys which play a role of data columns, are indicated. As a result, a relation is a connection between data sources on the basis of one or more key data columns. The Relation provides the ability to filter, sort, display data when accessing the same data source via a relation from another data source. Let's review the following example. The picture below shows two data sources - **Categories** and **Products** (partially):

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| CategoryID | CategoryName |
|---|---|
| 1 | Beverages |
| 2 | Condiments |
| 3 | Confections |
| 4 | Dairy Products |
| 5 | Grains/Cereals |
| 6 | Meat/Poultry |
| 7 | Produce |
| 8 | Seafood |

| CategoryID | ProductName | UnitPrice | UnitsInStock |
|---|---|---|---|
| 1 | Chai | 18 | 39 |
| 1 | Chang | 19 | 17 |
| 2 | Aniseed Syrup | 10 | 13 |
| 2 | Chef Anton's Cajun Seasoning | 22 | 53 |
| 2 | Chef Anton's Gumbo Mix | 21,35 | 0 |
| 2 | Grandma's Boysenberry Spread | 25 | 120 |
| 7 | Uncle Bob's Organic Dried Pears | 30 | 15 |
| 2 | Northwoods Cranberry Sauce | 40 | 6 |
| 6 | Mishi Kobe Niku | 97 | 29 |
| 8 | Ikura | 31 | 31 |
| 4 | Queso Cabrales | 21 | 22 |
| 4 | Queso Manchego La Pastora | 38 | 86 |

The relation is organized by the key data columns. Key data columns are present in the data sources, among which a relation is organized, and contain the keys. For example, in **Categories** and **Products** data sources the key columns are **CategoryID**. It should be noted that in this example, the names of key columns are the same, but this is not a prerequisite. The key data column in the data source **Categories** is called **CategoryID**, and the data source **Products** - **CategoryNumber**. Organizing the relation between data sources **Categories** and **Products** by the key columns **CategoryID**, where the data source **Categories** is the master data source, and **Products** is a detail data source. The relation between data sources will have the form as shown in the picture below (partially):

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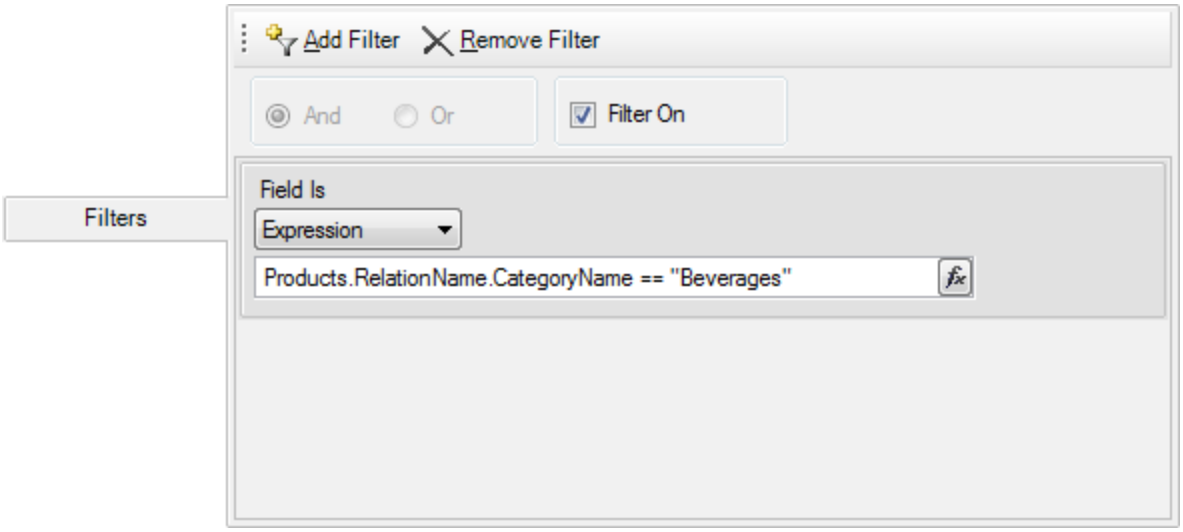
| | | | |
|---|---|---|---|
| Beverages | Chai | 18 | 39 |
| | Chang | 19 | 17 |
| Condiments | Aniseed Syrup | 10 | 13 |
| | Chef Anton's Cajun Seasoning | 22 | 53 |
| | Chef Anton's Gumbo Mix | 21,35 | 0 |
| | Grandma's Boysenberry Spread | 25 | 120 |
| Dairy Products | Queso Cabrales | 21 | 22 |
| | Queso Manchego La Pastora | 38 | 86 |

As can be seen, after the organization of a relation, to each entry from the data source **Categories** will be matched to entries from the data source **Products**. In this example, entry Beverages is matched to entries Chai and Chang; entry Condiments is matched to Aniseed Syrup, Chef Anton's Cajun Seasoning, Chef Anton's Gumbo Mix, Grandma's Boysenberry Spread; entry Dairy Products is matched to Queso Carbales and Queso Manchego La Pastora.

### 6.1.3.1 Filtering

In Stimulsoft Reports it is possible to filter data using relations between data sources. Let's review data filtering via a relation (in the example we use data source Products). If you want to filter data by the category name, i.e. by the entries in the data column **CategoryName** of the data source **Categories**, then, with established relation between data sources **Categories** and **Products**, to add a filter to the expression: **Products.RelationName.CategoryName ==** "category name" by which filtering will occur. The picture below shows a window of data filtering via the relation between data sources:




where Products is a data source name; RelationName is a name of the relation between data sources, i. e. reference to another data source vie the relation; CategoryName is a data column in the data source.

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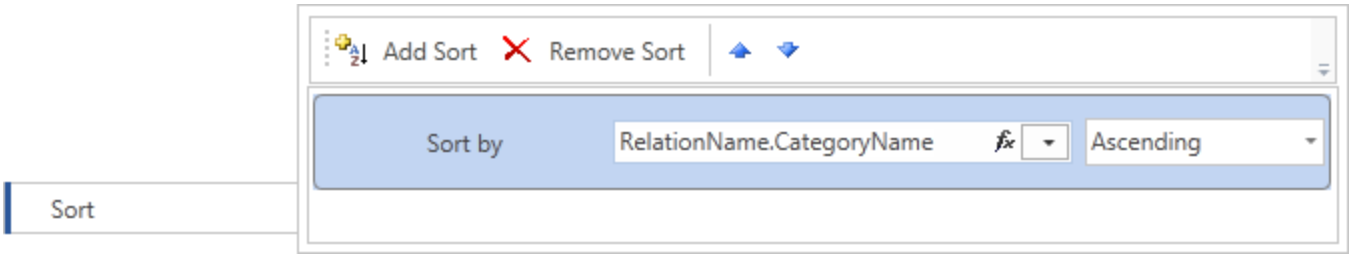
Now, when rendering a report, the report generator filters data from the data source **Products** and displays the data that belong to the category **Beverages**. The picture below shows a page of the rendered report:

| ProductName | UnitPrice | UnitsInStock |
|---|---|---|
| Chai | 18 | 39 |
| Chang | 19 | 17 |
| Guaraná Fantástica | 4,5 | 20 |
| Sasquatch Ale | 14 | 111 |
| Steeleye Stout | 18 | 20 |
| Côte de Blaye | 263,5 | 17 |
| Chartreuse verte | 18 | 69 |
| Ipoh Coffee | 46 | 17 |
| Laughing Lumberjack Lager | 14 | 52 |
| Outback Lager | 15 | 15 |
| Rhönbräu Klosterbier | 7,75 | 125 |
| Lakkalikööri | 18 | 57 |

### 6.1.3.2 Sorting

When sorting data it can be used not only columns in the specified data source but the columns in the source, which can be accessed vie the relation. Let's review data sorting using a relation (in the example we use data source Products). If you want to sort by category name, i.e. entries in the data column **CategoryName** of the data source **Categories**, then, with established relation between data sources **Categories** and **Products**, to add sorting to the expression: **Products.RelationName.CategoryName**. You should also select sorting direction. In this example we set the **Ascending** sorting direction. The picture below shows a window of data sorting via the relation between data sources:




Now, when rendering a report, the report generator will sort data from the data source **Products** by names of the categories in alphabetical order from A to Z. The picture below shows a page of the rendered report:

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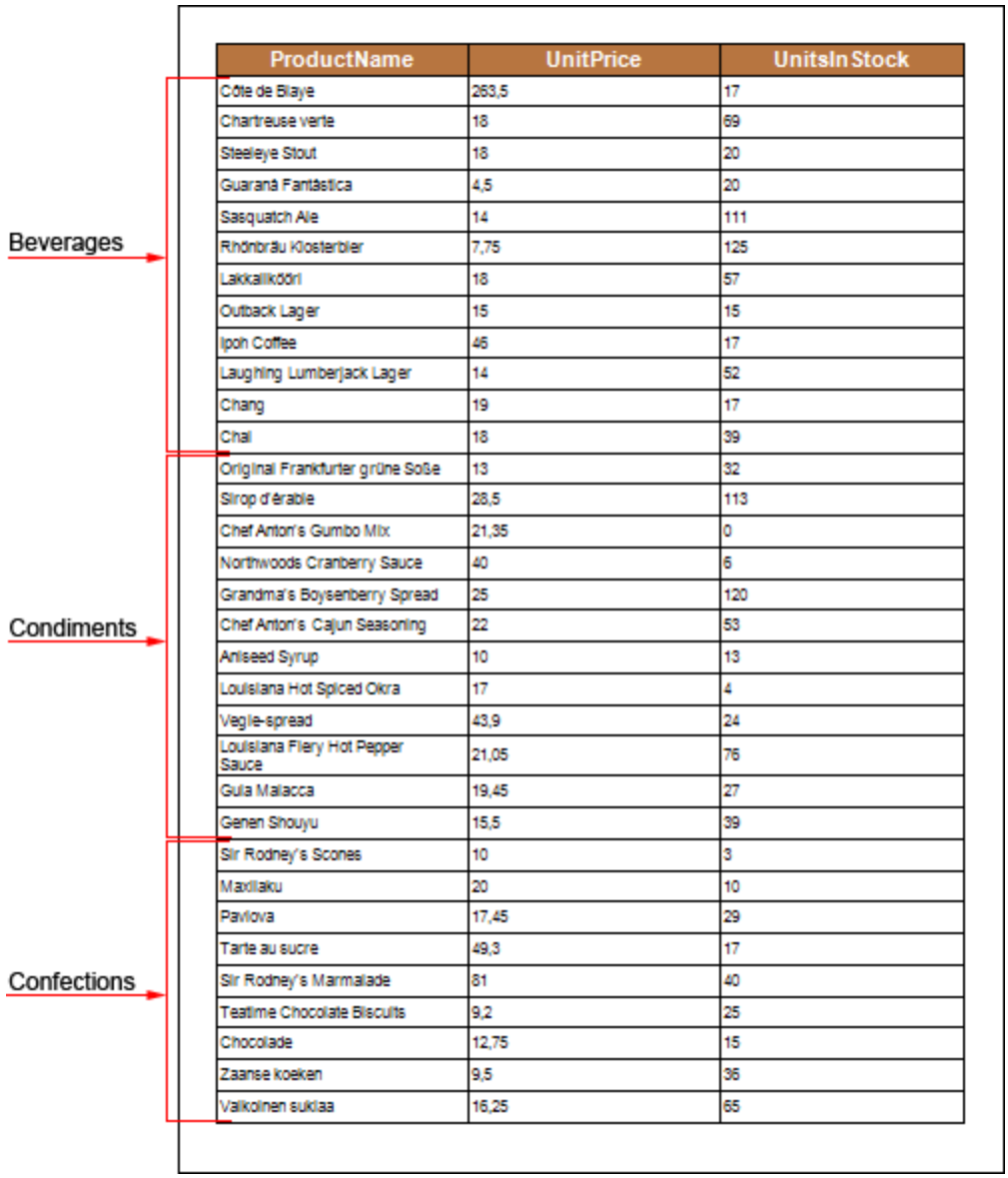


| ProductName | UnitPrice | UnitsInStock |
|---|---|---|
| Côte de Blaye | 263,5 | 17 |
| Chartreuse verte | 18 | 69 |
| Steeleye Stout | 18 | 20 |
| Guaraná Fantástica | 4,5 | 20 |
| Sasquatch Ale | 14 | 111 |
| Rhönbräu Klosterbier | 7,75 | 125 |
| Lakkalikööri | 18 | 57 |
| Outback Lager | 15 | 15 |
| Ipoh Coffee | 46 | 17 |
| Laughing Lumberjack Lager | 14 | 52 |
| Chang | 19 | 17 |
| Chai | 18 | 39 |
| Original Frankfurter grüne Soße | 13 | 32 |
| Sirop d'érable | 28,5 | 113 |
| Chef Anton's Gumbo Mix | 21,35 | 0 |
| Northwoods Cranberry Sauce | 40 | 6 |
| Grandma's Boysenberry Spread | 25 | 120 |
| Chef Anton's Cajun Seasoning | 22 | 53 |
| Aniseed Syrup | 10 | 13 |
| Louisiana Hot Spiced Okra | 17 | 4 |
| Vegie-spread | 43,9 | 24 |
| Louisiana Fiery Hot Pepper Sauce | 21,05 | 76 |
| Gula Malacca | 19,45 | 27 |
| Genen Shouyu | 15,5 | 39 |
| Sir Rodney's Scones | 10 | 3 |
| Maxilaku | 20 | 10 |
| Pavlova | 17,45 | 29 |
| Tarte au sucre | 49,3 | 17 |
| Sir Rodney's Marmalade | 81 | 40 |
| Teatime Chocolate Biscuits | 9,2 | 25 |
| Chocolade | 12,75 | 15 |
| Zaanse koeken | 9,5 | 36 |
| Valkoinen suklaa | 16,25 | 65 |

### 6.1.3.3 Showing Information

Stimulsoft Reports tools can display data from a bound data source. For example, data from columns are displayed in a report: **ProductName**, **UnitPrice**, **UnitsInStock** of the data source **Products**. The picture below shows the a page of the report:

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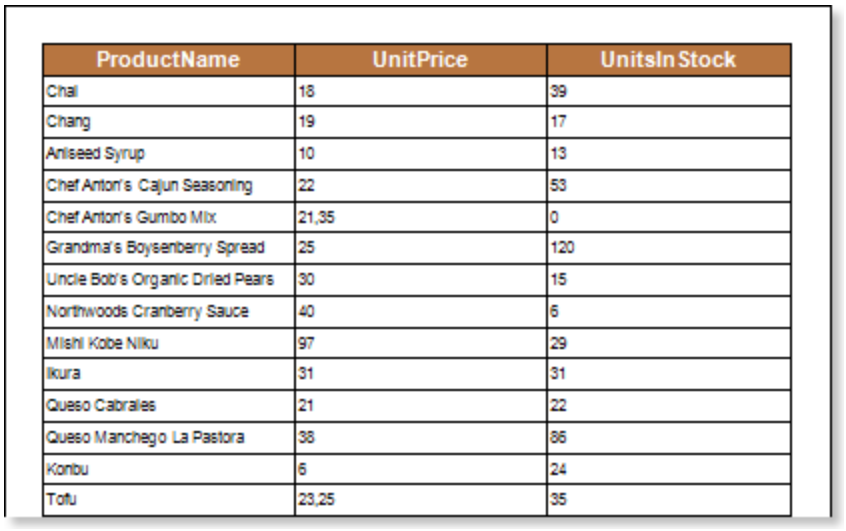
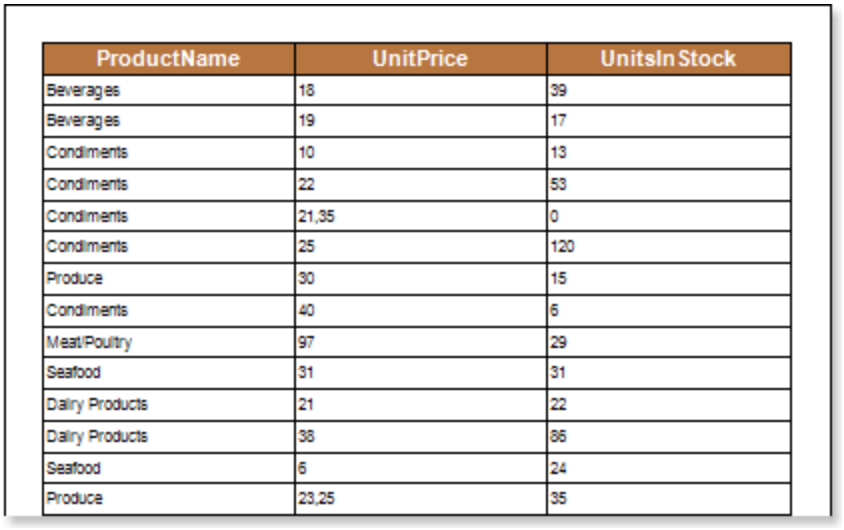


| ProductName | UnitPrice | UnitsInStock |
|---|---|---|
| Chai | 18 | 39 |
| Chang | 19 | 17 |
| Aniseed Syrup | 10 | 13 |
| Chef Anton's Cajun Seasoning | 22 | 53 |
| Chef Anton's Gumbo Mix | 21,35 | 0 |
| Grandma's Boysenberry Spread | 25 | 120 |
| Uncle Bob's Organic Dried Pears | 30 | 15 |
| Northwoods Cranberry Sauce | 40 | 6 |
| Mishi Kobe Niku | 97 | 29 |
| Ikura | 31 | 31 |
| Queso Cabrales | 21 | 22 |
| Queso Manchego La Pastora | 38 | 86 |
| Konbu | 6 | 24 |
| Tofu | 23,25 | 35 |

If you want to display a category name instead of a product one, and the data column with the names of categories is not present in the data source **Products**, then it can be done using a relation between data sources. To do this, you should change the expression **Products.ProductName** in the text component to the expression **Products.RelationName.CategoryName**. Using the relationship between data sources, the report generator, when report rendering, will take the names of categories from the column **CategoryName** of the data source **Categories**, and substitute them instead of the expression. The picture below shows the a page of the rendered report displaying category names instead of the product name:



| ProductName | UnitPrice | UnitsInStock |
|---|---|---|
| Beverages | 18 | 39 |
| Beverages | 19 | 17 |
| Condiments | 10 | 13 |
| Condiments | 22 | 53 |
| Condiments | 21,35 | 0 |
| Condiments | 25 | 120 |
| Produce | 30 | 15 |
| Condiments | 40 | 6 |
| Meat/Poultry | 97 | 29 |
| Seafood | 31 | 31 |
| Dairy Products | 21 | 22 |
| Dairy Products | 38 | 86 |
| Seafood | 6 | 24 |
| Produce | 23,25 | 35 |

As can be seen in the picture above, instead of the product names, the category names to which products are related are output.

### 6.1.3.4 Master-Detail Report

"From the detail via a relation to the master data source" scheme was used in the previous chapters

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(filtering, sorting, and showing information). When you render a Master-Detail reports a different scheme "from master to detail" is used, i.e. the relation works in reverse order. For example, in the report template DataBand1 is placed in the report template. This band contains a text component with reference to a data column, which contains the categories names. Then, when rendering a report, you will see a list of categories. The picture below shows a report page with the names of categories:

Suppose you want to compare each category from the list to the list of products. To do this, follow these steps:

- ✓ Add **DataBand2** to the report template;
- ✓ Specify a data source that contains a list of products and the relation between data sources;
- ✓ Select the Master component;
- ✓ Put a text component with reference to a data column from the selected data source in the **DataBand2**. For example, on a data column that contains the name of the product.

And then, when rendering a report, each **Master** entry will be compared to a list of **Detail** entries. The picture below shows a diagram of a **Master-Detail** report:

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### 6.1.3.5 Creating Relation

It is possible to create a relation between data sources in the data dictionary. In order to do this select the item **New Relation** in the context menu of a data source or from the menu **Actions**. The picture below shows a **New Relation** dialog:

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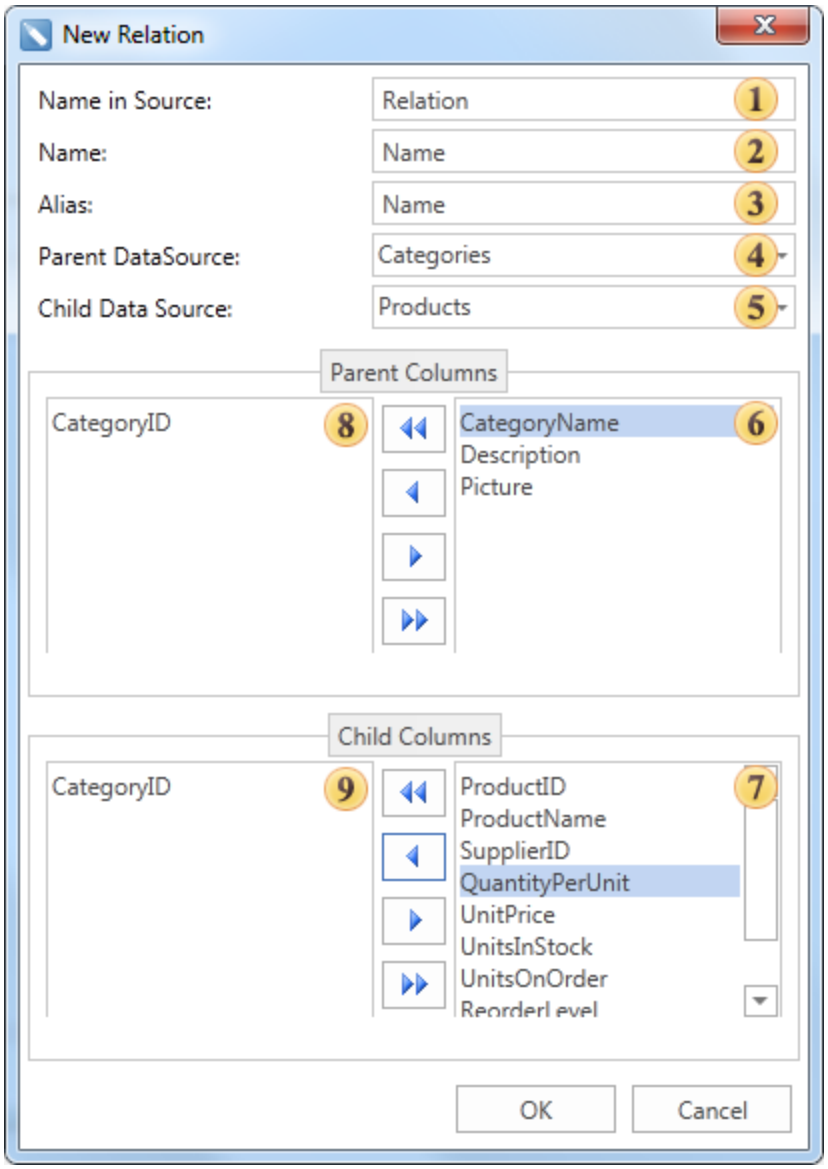


As can be seen there are nine fields, which define the relation parameters:

1 In the field **Name in Source** the name of a relation is specified. By this name the relation will be found from the original data (for example in the **DataSet**). If the relation between data sources will be created on the basis of a relation in the DataSet, then this name will coincide with the field **Name**. This field is required to be filled.
2 Filed Name is used to specify the name of a relation which is used to refer to this relation in the report. This field is required to be filled.
3 In the field **Alias** a hint for the relation will be specified and displayed to the user. This field is mandatory.
4 Filed **Parent DataSource** indicates the parent data source for the relation. This field is required to be filled.
5 Filed **Child Data Source** indicates a detail data source for this event. This field is required to be filled.

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6 This field displays the selected column-keys from the parent data source.
7 This field displays the selected column-keys from the child data source.
Fields 8 - 9 show parent and child data key columns, by which **Relation** between data sources is set.

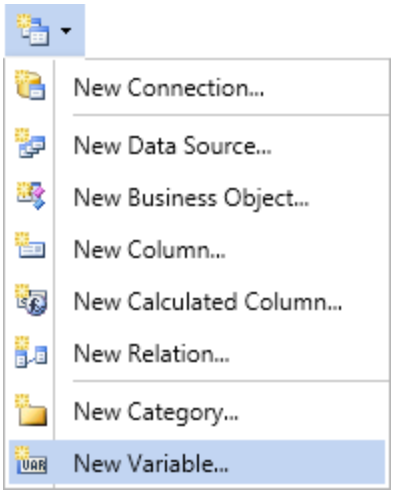
#### 6.1.3.5.1 Limitations in Creating Relations

When creating or using relations between data sources, the following restrictions are:

- Selected data sources (parent and child) must be of the same type, i.e. types relations should be identical. If the types relations are different, then you can use the **CashAllData** property.
- **Name** must be present and correct, in terms of **C#** or **VB.NET** compiler. If the name is reserved in the source, you must add the **@** symbol before the relation name. For example, **@relation**.
- Column-keys must comply with all rules of creation a relation to **ADO.NET**:
  - ✓ Their number must be the same;
  - ✓ Their types must match, so if the primary column-key of the **String** type, then the child column-key must be of the **String** type;
  - ✓ Keys must be specified, so the relation cannot be created without keys.

## 6.1.4 Variables

In Stimulsoft Reports, you can use **Variables** in the report. The **Variable** is used for placing and using any value in the report. Values can be of different types: string, date, time, number, array, collection, range etc. All variables are stored in the data dictionary. Before you use a variable in the report, it should be added to the data dictionary. Adding a variable, you can select in the data dictionary **New Item** -> **New Variable...** (see the picture below).




Also, you can create a new variable clicking in the context menu of the data dictionary **Variables** -> **New Variable...** (see the picture below).

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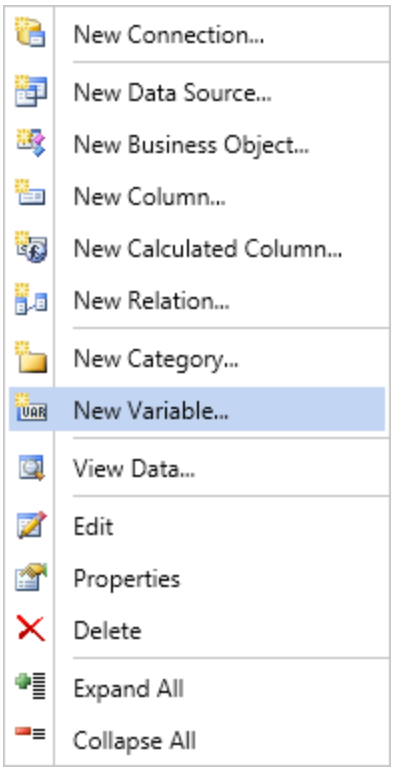
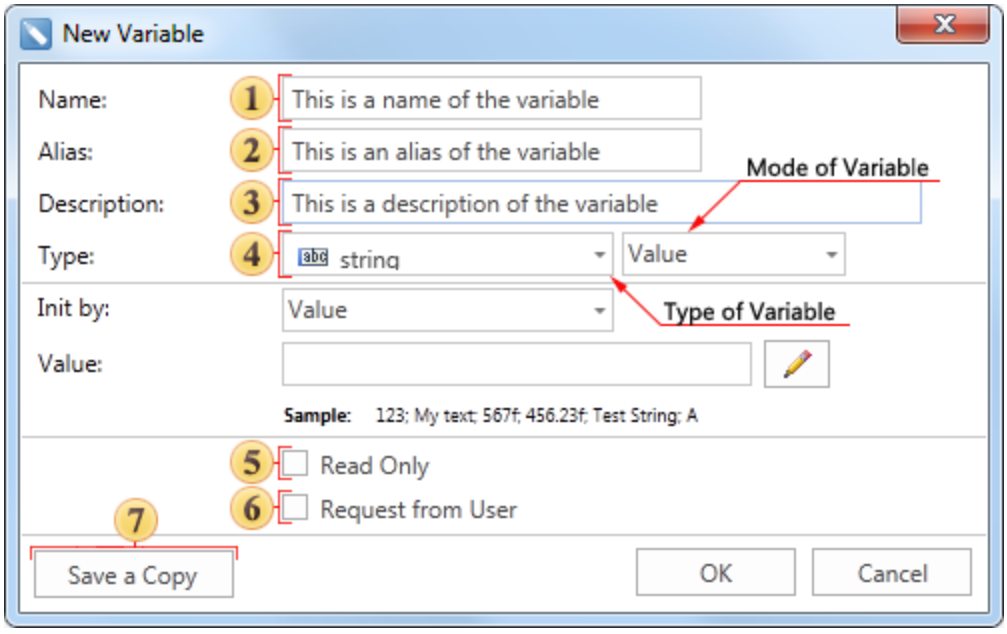



After choosing this option the **New Variable** dialog will be open, in which you want to define the parameters of the variable (see the picture below).




1 The **Name** field. Specifies the variable name used in the report.
2 The **Alias** field. Specifies the variable name displayed to the user.
3 The **Description** field. Specifies comments for the variable.

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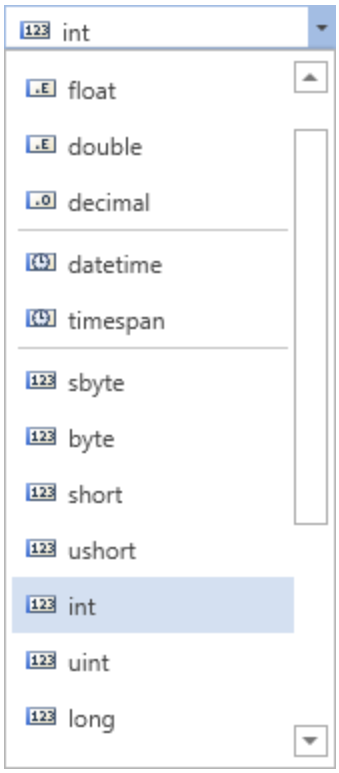
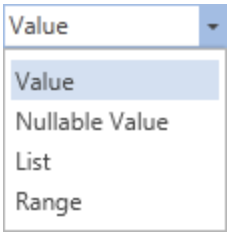
4 The **Type** field. Specifies the data type that will be placed in the variable. This field is represented with two options. The first list is a list of all available data types, grouped into categories:




As can be seen from the picture above, the integer type is selected. The second list contains the list of variables types. Depending on the type of the variable some additional parameter fields may appear. The list of variables is presented in the second list of the **Type** field (see the picture above). The picture below shows is a list of the variable types:




As can be seen from the picture above, the variable may be the of the following types: Value, Nullable Value, List, Range. Then consider all types of variables and the **Request from User** option in more detail.

5 The **Read Only** option. Enables the read-only mode, i.e. in this case will return the value stored in a variable and the user cannot change it. In this case, if the value is initialized as an expression, then, when addressing to our variable, the expression is evaluated each time.
6 The **Request from User** option. Sets the mode at which the returned value can be changed by the user. It should be noted that, if to set the Request from User option, the additional panel will be displayed. On this panel the settings of the variable that determine the capabilities of user interaction

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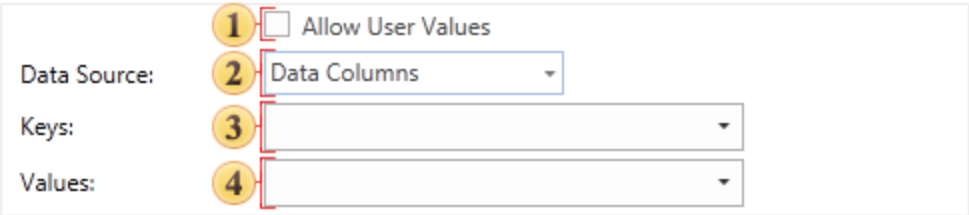
are placed, in the case of the variable in the report. In addition, New Variable dialog can be modified.
7 The **Save a Copy** button saves a copy of an editable variable assignment with the Copy postfix in the variable name.

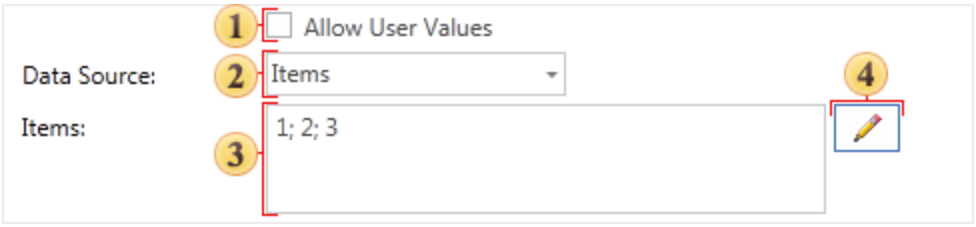
#### 6.1.4.1 Panel Request From User

The **Request from user** panel contains parameters controls. These parameters determine the possible involvement of the user when using the variable in the report. Some options may present or absent, depending on the value of the **Data Source** field. The picture below shows the **Request from user** panel, if in the **Data Source** field the **Data Columns** value is selected:




1 The **Allow User Values** parameter. Provides an opportunity to set the dialogue mode, i.e. using this variable in a report the user may input values.
2 The **Data Source** field. Contains a drop-down list of values. Depending on the selected value: **Items** or **Data Columns**, on this panel will be fields either **Items**, or **Keys** and **Values**.
3 The **Keys** field. using the , the data column is selected. The entries of the column will be keys.
4 The **Values** field. using the , the data column is selected. The entries of the column will be values.

If the **Data Source** is set to **Items**, then on the **Request from user** panel other options will be located. The picture below shows the **Request from user** panel:




1 The **Allow User Values** parameter. Used to set the dialogue mode, i.e. using this variable in a report the user may input values.
2 The **Data Source** contains a drop-down list of values. Depending on the selected value: **Items** or **Data Columns**, on this panel will be fields either **Items**, or **Keys** and **Values**.
3 The **Items** field. Displays a list of created variable items. If the items are not created, then this field will be blank. It should be noted that the order of items in the list depends on their priority on the list panel in the **Items** dialog, the higher the item is the left its position is in the list, and vice versa.
4 The **Editor** button. Calls the **Items** dialog, where you can create new items, remove existing or edit them.

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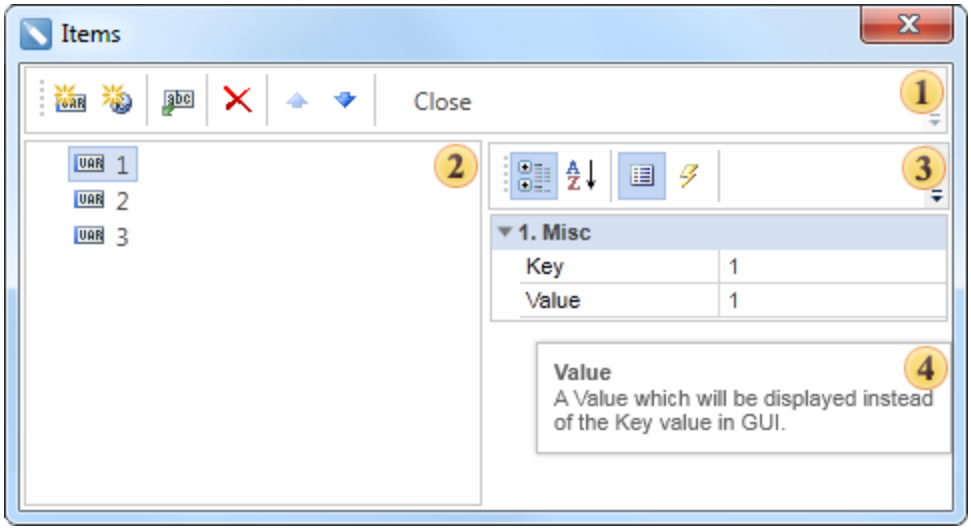
6.1.4.1.1 Items Dialog

In the **Items** dialog you can create, delete, edit items (values, expressions). This window is invoked when clicking the **Editor** in the **Variables** dialog. The picture below shows the **Items** dialog:




1 Control Panel. This panel contains buttons to control items.
2 In the Toolbox displays a list of created items (values, expressions). Keep in mind that the order of items in the list affects sequence of items in the **Items** field on the **Request from User** panel.
3 The properties panel. In this panel the properties of the selected item are displayed. The item has two properties: **Key** and **Value**.
4 The panel displays the description of the selected property.

**Control Panel**
As mentioned above, on this panel (see the picture above) the buttons to control items are placed.

1 The **New Value** button. Used to create a new type of the value;
2 The **New Expression** button. Creates a new type of an expression;
3 The **Select Columns** button. Calls a dialog where you can specify data columns as keys and values;
4 The **Remove** button. Removes the selected item.
5 The **Navigation** buttons. Used to move selected item up or down in the toolbox.
6 The **Close** button. Closes the Items dialog saving changes.

6.1.4.1.2 Dependent Variables

When you create a report with parameters, you can use the dependent variables. In this case, one variable will be independent, and the rest ones will depend on it or will represent a hierarchy. Each

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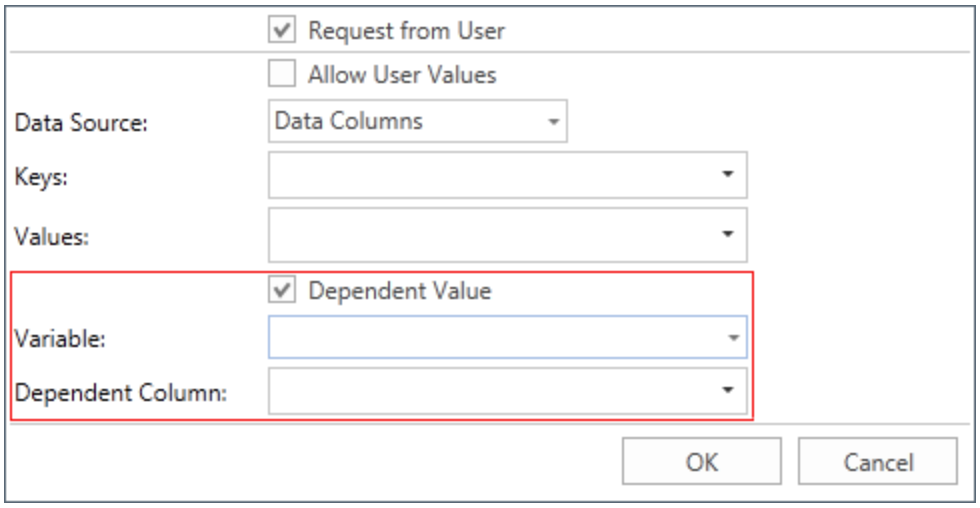
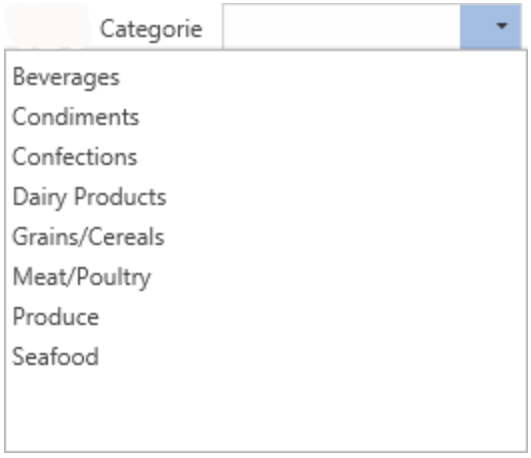
subsequent variable is dependent on the previous one. To become dependent, the variable must have the checkbox **Allow User Values** enabled (it is located on the panel **Request From User** when you choose a data source **Data Column**). After you enable the checkbox two fields will be displayed: the **Variable** and **Dependent Column**. In the first field, select the variable that will be the main one from which this variable will depend. In the second field select the data column, which will be in relation with the main variable.




This possibility (relations between variables) is useful when using parameters in reports, for example, in Master-Detail reports. Suppose we have a list of categories, each category includes several products, and each product has detailed description. In this case, using the report parameters, the variable by a product and by product information will contain a huge list of values (completely full list of products and descriptions), and, if it is necessary to select a particular product or information on it, this will take much time. If the relations between variables is missing, then the list of category values will contain 8 categories of products - 77 records, and detailed data to several hundreds. It will be almost impossible to find a product or information on it. The images below show examples of lists of values without the relations between the variables:

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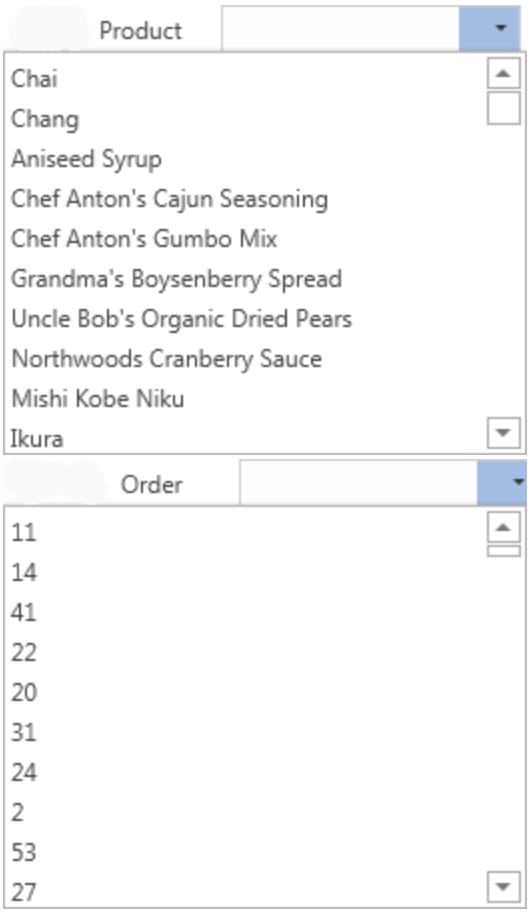
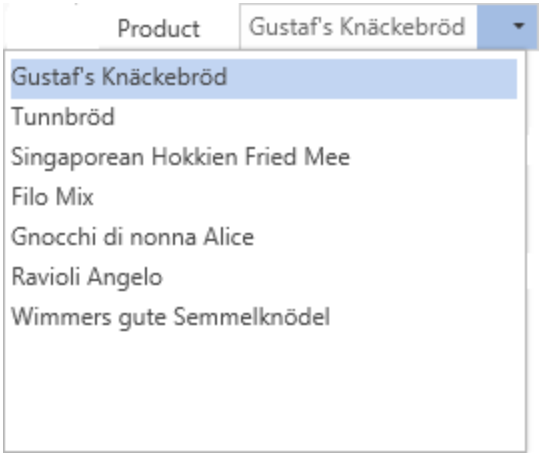



The dependent variables provides an opportunity to reduce the list of variables. In other words, you can establish a connection among variables. This will lead to filtering the list of values depending on the value of the main variable. For example, depending on the selected category, a list of values of a variable by product is created, and, depending on the selected product, a list of detailed information is created. For example, the category **Condiments** will be selected, then the list of products will be filtered and will look like this:




Now select the product **Genen Shouyu**, and then the list of detailed information will be like this:

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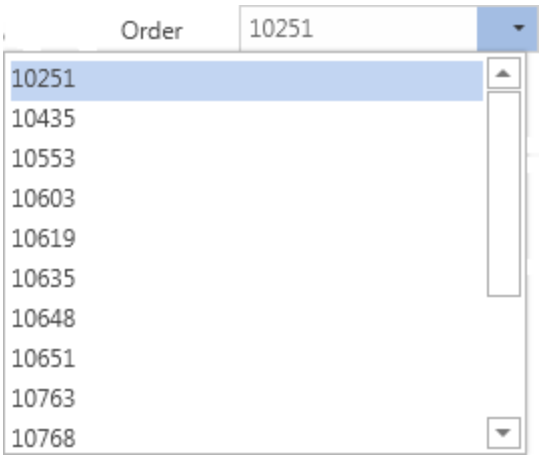
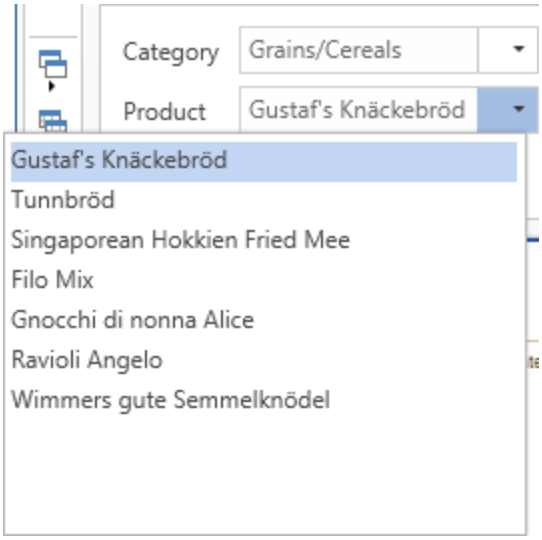



Consider creating and using variables in the report. Create two variables, one of which will contain a list of categories, a second is list of products. And the list of products will depend on the selected category. For example, on the base of data sources from our Demo application.

Create variables **Category** and **Product**, of the type **Value** with initialization of data **integer**. In the main variable (**Category**), choose the keys **Categories.CategoryID**, and the values **Categories.CategoryName**.

**Notice:** The key is a unique identifier of a record (row) in the data source. In this case, **CategoryID** will be a column that contains keys, and **ProductID** - for products. The connection is organized by keys between the data sources. It is important to understand that different product keys may be related to the same category key.

In the dependent variable define keys **Products.ProductID**, and the values **Products.ProductName**. Select the checkbox **Dependent Value**, select **Category** as the main variable and data column **Products.CategoryID** as the dependent column. We go to the tab **Preview**, as shown in the picture below. It shows two parameters. In the first list the category is selected, and the second list (products) is created depending on the selected category:

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As can be seen from the picture above, the second variable (a list of values) displays not complete list of stored values, but only those values that belong to the selected category.

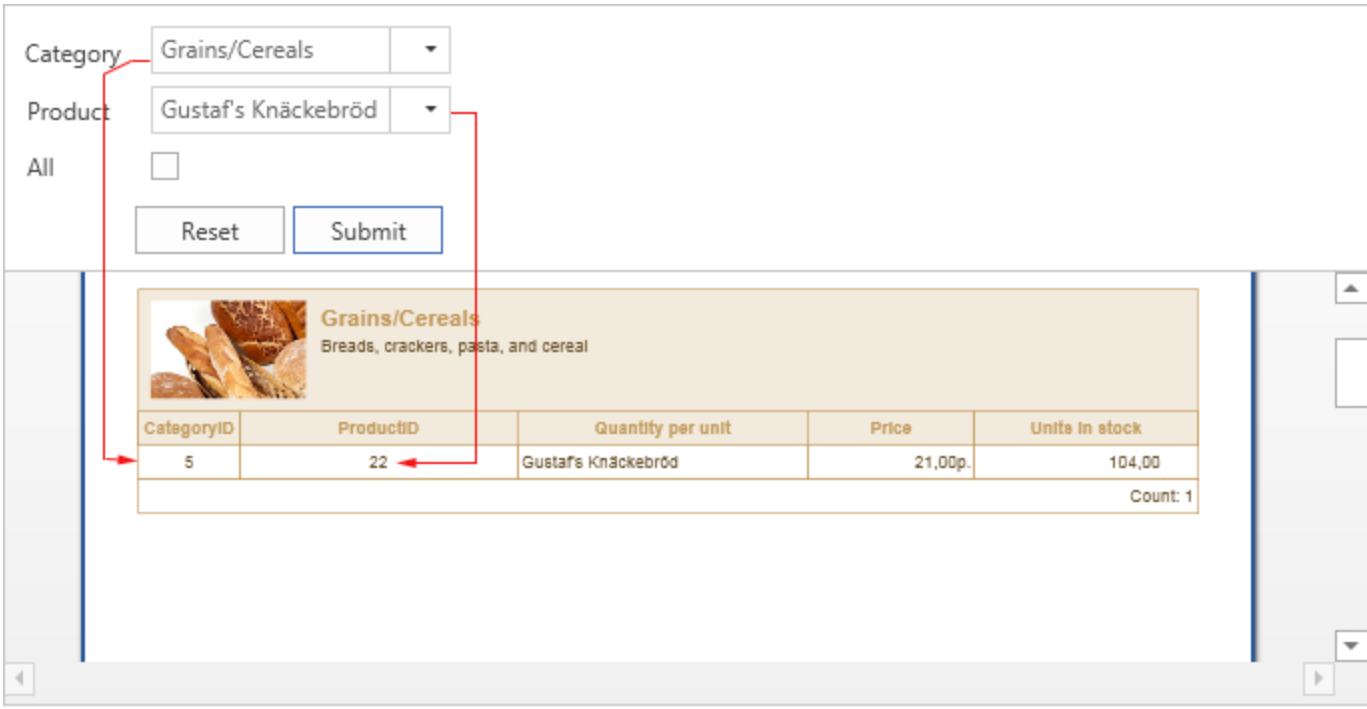
Add a third variable in the data dictionary. The variable will be named **All**, of the type **Value** with initialization data **bool**.

Now use the dependent variable in the report. Suppose we have a Master-Detail Report, where each category has a few products. Add filters with expressions on Data bands in the report template in order to choose a certain product or products of a certain category:

- The first filter is on the data band Master. (this is the band with which a list of categories is created in the report). It is necessary to filter categories, depending on the selected report parameter, so the expression looks like **Category == Categories.CategoryID**.

- Next, add a second filter on the data band Detail (this is the band with which a list of products is created in the report). The filter will have the expression **Product == Products.ProductID**.

Switch to the tab Preview. In the report parameters select a category, then a product, apply settings to filter report data:




As can be seen from the picture above, the category **Grains/Cereals** was chosen (note, the key of the category is 5) and the product **Gustaf's Knackebrod** (product key = 22). In other words, all categories with the key 5 and all the products with the key 22 are displayed.

In order to display a complete list of products related to the category, it is necessary to use the third variable, **All**. Therefore, you should change the filter expression on the Data band with which to create a list of products (**Product == Products.ProductID || All**). In this case, depending on the value of the third variable (enabled/disabled) filtering will be done. If the checkbox is disabled, the filter will occur by the product keys (the report shows the product which key matches). If the checkbox is enabled all the

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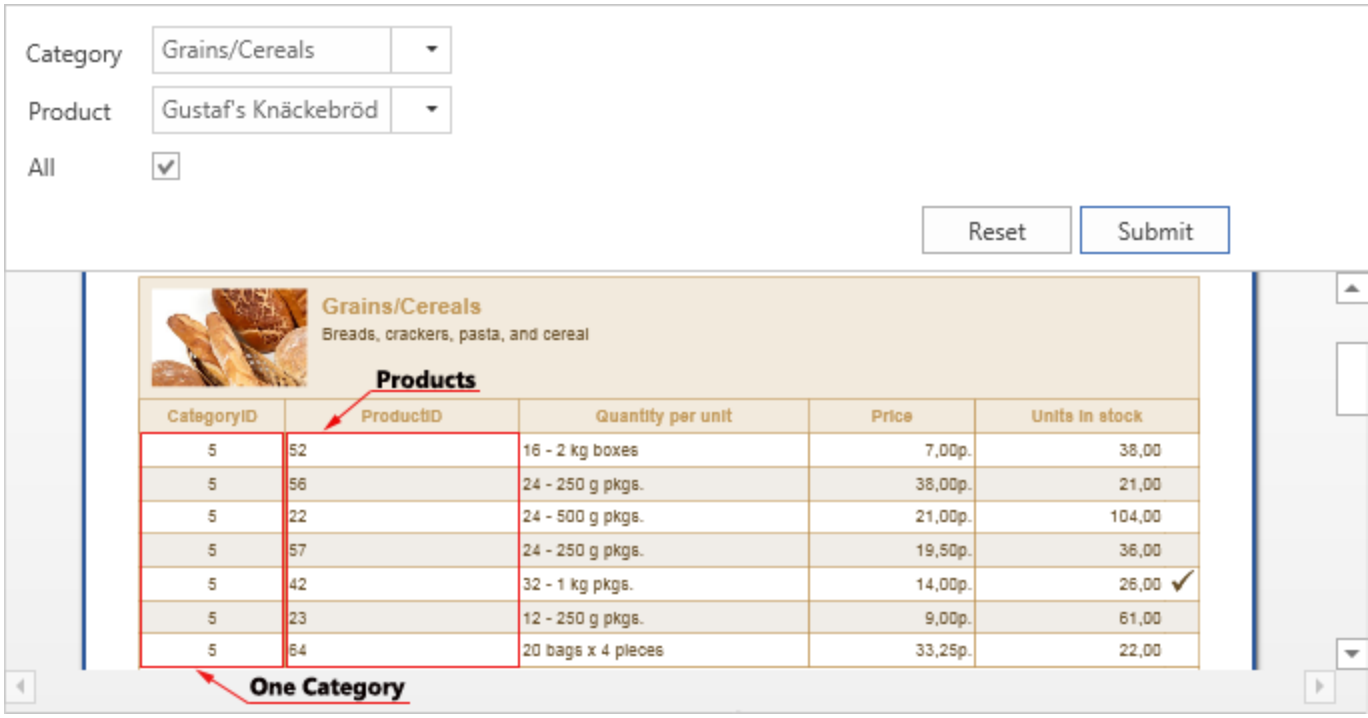
products of the selected category will be shown:




As can be seen from the picture above, one category (key = 5) is displayed, and all products related to it, with different keys.

The example that was reviewed above is a single-level dependency. Now consider a more complex example of a two-level dependency. Leave the category, products related to them, and add detailed data by each product. To do this, create the variable **Order** of the **Value** type with initialization of data **integer**. Next, enable the checkbox **Request From User**, select the data source as the data column.

- ✓ The column with keys **OrderDetails.OrderID**, with values **OrderDetails.UnitPrice**.
- ✓ Next, set relations with the products. Select **Product** as a main variable. The dependent column is **OrderDetails.ProductID**.
- ✓ Now, in the report template, add the Data band with detailed information on the products. In this example, select **Order Details** as the data source for the Data band. The **Master** component will be the Data band with the products. Also indicate the relationship between the data sources.
- ✓ Add a filter with the expression **Order == Order_Details.OrderID** in the Data band, which contains detailed information on products.
- ✓ Go to the tab **Preview**.

In the report, select a category, and the list of products is filtered. Select the product, and then the list of detailed data for the selected product is filtered. Select a detailed value, click the button **Apply**:

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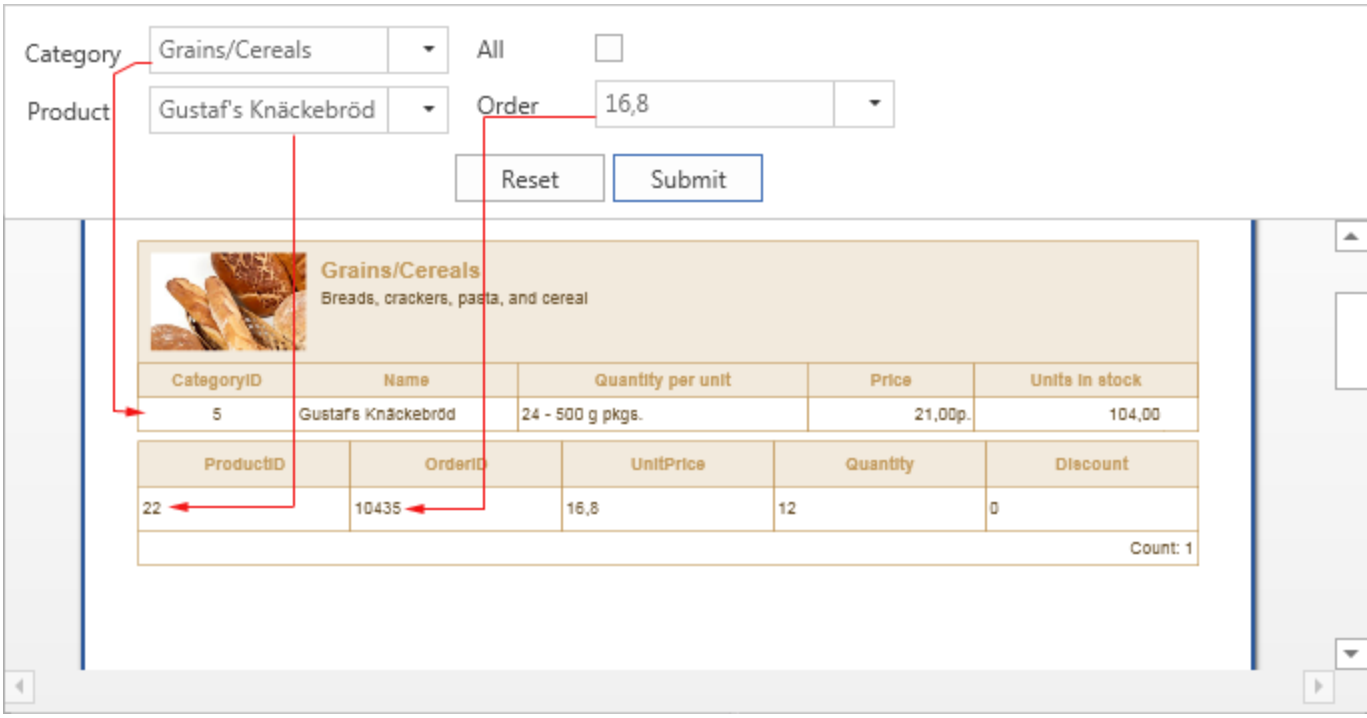
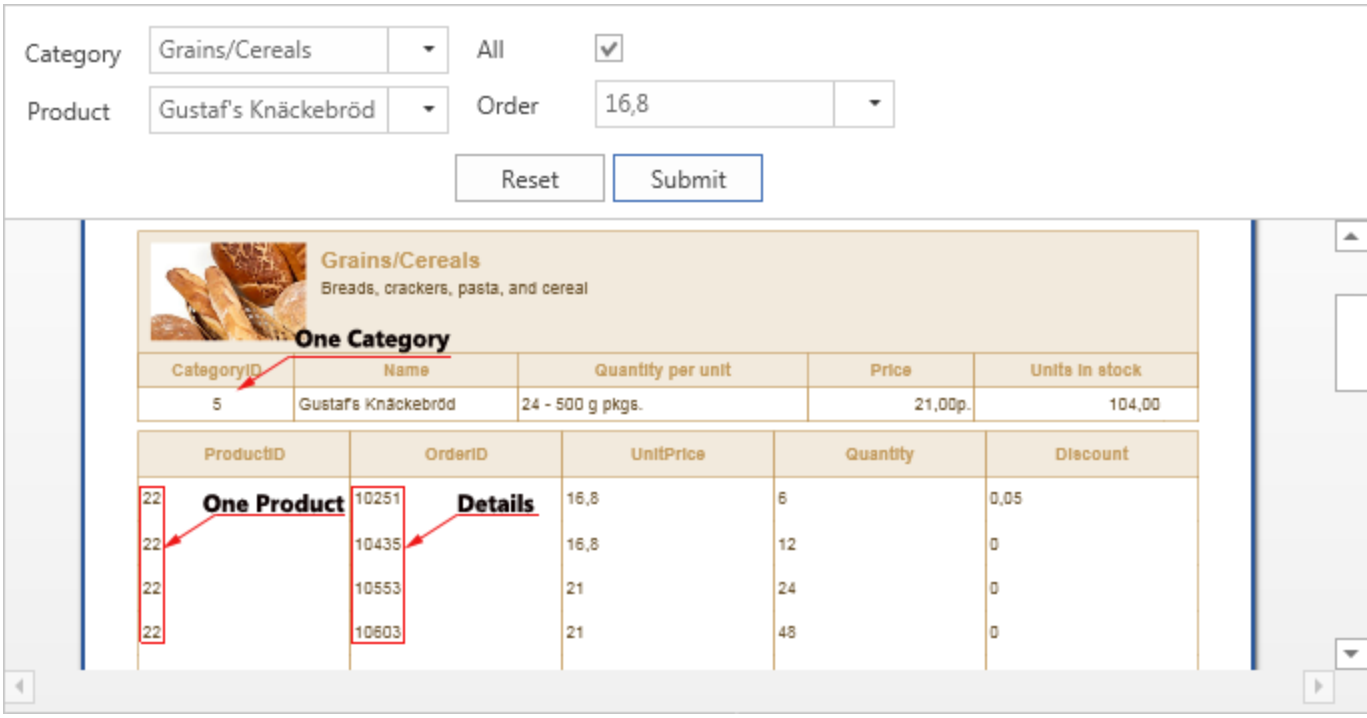



If you need to display all the detailed information on the selected product, you should change the filter expression in the Data band with detailed data by products. The expression will be with Variable3 and will look **Order == Order_Details.OrderID || All**. Now, you can simply specify a category, select a product and get all the detailed information on it:




As can be seen from the picture above one category, one product and all the details by the product were

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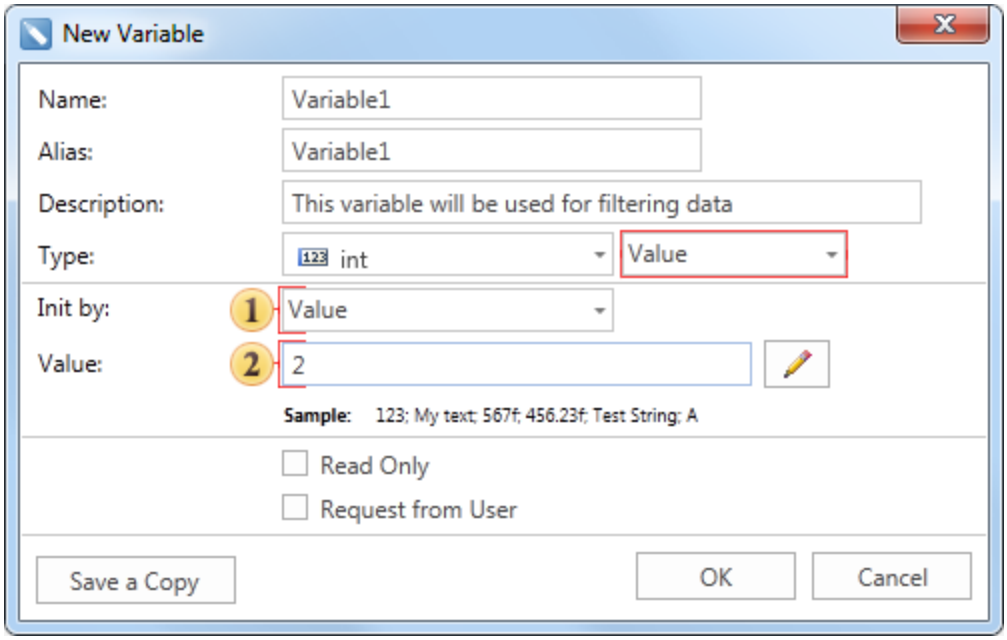
printed. It is also worth noting that the number of nesting levels is not limited.

### 6.1.4.2 New Variable

The variable of the first type provides the ability to place a simple value of any available data type or expression. Consider the example of creating such a variable. Call the **New Variable...** command. The dialog box in which to define the parameters of the variable will be opened. The Value variable is set by default. The picture below shows the **New Variable** dialog:




1 The **Init by** field has a menu with the drop-down list. Depending on the selected item in this menu the type of the value in a variable is defined: Value or Expression, i.e. the method of initializing a variable as a value or expression is selected. In this example, the variable is initialized as a Value.
2 This field specifies the value to be stored in a variable. Please note that this field may be missing. If, for example, the Expression is selected in the Init by field, then this field is absent, and the Expression field present instead. In this case, in the Expression field you should specify an expression that will be stored in a variable. In this example, the variable is equal to 2.

After pressing the **Ok** button the variable named **Variable1** will be created. Consider the example of using variable of the type **Value** in the report. Suppose there is a report that contains information about employees (see the picture above).

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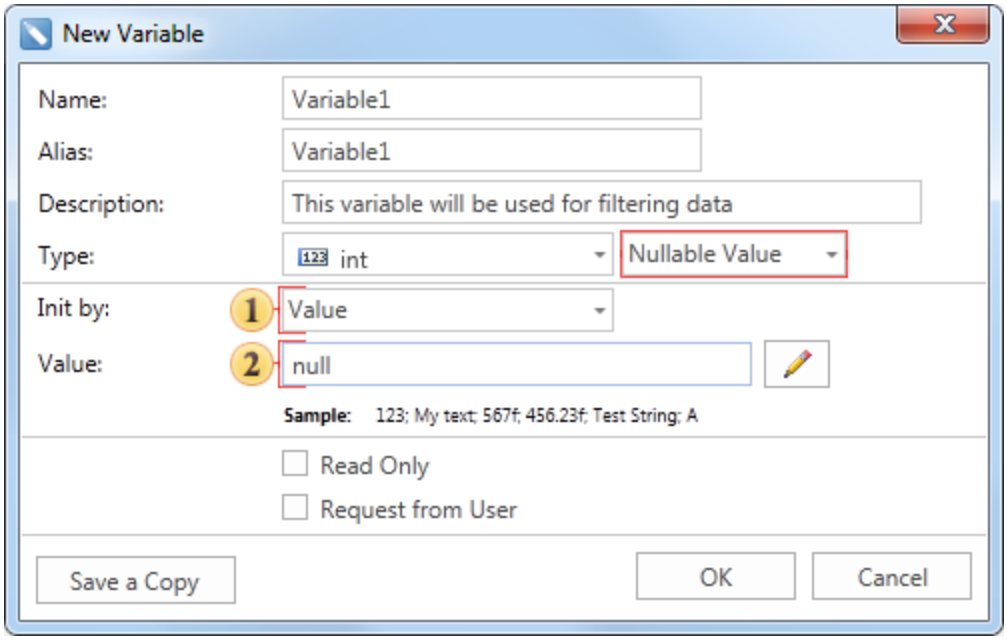
| EmployeeID | LastName | City | Country |
|---|---|---|---|
| 1 | Davolio | Seattle | USA |
| 2 | Fuller | Tacoma | USA |
| 3 | Leverling | Kirkland | USA |
| 4 | Peacock | Redmond | USA |
| 5 | Buchanan | London | UK |
| 6 | Suyama | London | UK |
| 7 | King | London | UK |
| 8 | Callahan | Seattle | USA |
| 9 | Dodsworth | London | UK |

Add a filter with the expression **Employees.EmployeeID == UNN** in the **DataBand**. Now, when rendering a report, the information about employees whose **EmployeeID** is equal to the value stored in a variable will be output. In this example, **EmployeeID = 2**. The picture below shows a report with the condition of filtering:

| EmployeeID | LastName | City | Country |
|---|---|---|---|
| 2 | Fuller | Tacoma | USA |

### 6.1.4.3 Nullable Value

The **Nullable Value** variable provides the ability to place simple values and values equal to **null**. If it is necessary to return a **null** value in the report, then when using a variable of another type, the report compilation error occurs. The picture below shows the **New Variable** dialog of the **Nullable Value**:

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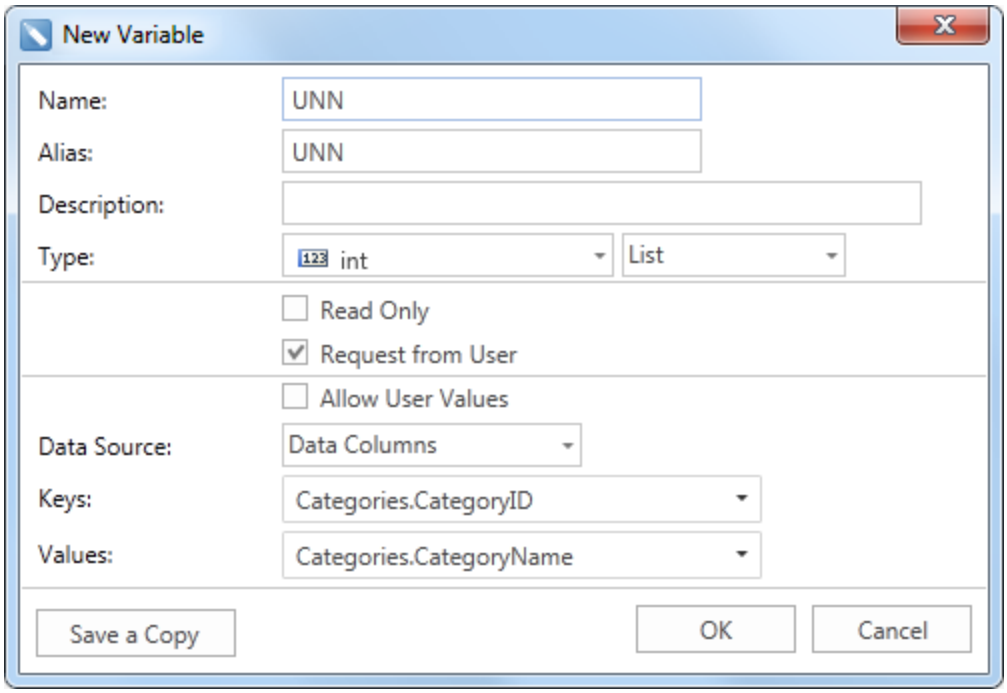
1 The **Init by** field has a menu with the drop-down list. Depending on the selected item in this menu the type of the value in a variable is defined: Value or Expression, i.e. the method of initializing a variable as a value or expression is selected. In this example, the variable is initialized as a Value.
2 This field specifies the value to be stored in a variable. Please note that this field may be missing. If, for example, the Expression is selected in the Init by field, then this field is absent, and the Expression field present instead. In this case, in the Expression field you should specify an expression that will be stored in a variable. In this example, the variable is equal to 2.

### 6.1.4.4 List

The **List** variable provides the ability to place a list of values of any available data type. In contrast to the **Value** variable, in this case, when report rendering, the variable contains a list of values. The picture below shows the **New Variable** dialog with the selected **List** type:




After clicking OK, a variable named **UNN** and the stored list of values from 0 to 8 will be created. Consider using a variable created in the report. Suppose there is a report that contains numbers, names and descriptions of categories. The picture below shows a report page:

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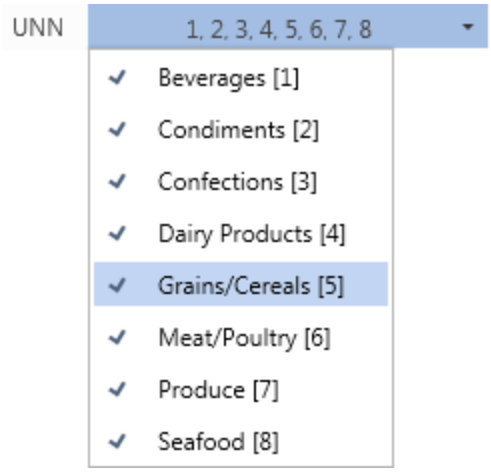
| | |
|---|---|
| 1 | Beverages<br>*Soft drinks, coffees, teas, beers, and ales* |
| 2 | Condiments<br>*Sweet and savory sauces, relishes, spreads, and seasonings* |
| 3 | Confections<br>*Desserts, candies, and sweet breads* |
| 4 | Dairy Products<br>*Cheeses* |
| 5 | Grains/Cereals<br>*Breads, crackers, pasta, and cereal* |
| 6 | Meat/Poultry<br>*Prepared meats* |
| 7 | Produce<br>*Dried fruit and bean curd* |
| 8 | Seafood<br>*Seaweed and fish* |

If you want to show some of the categories then use already created variable in the report. To do this, add a filter in the **DataBand** with the expression **UNN.Contains(Categories.CategoryID)**, where **UNN** is the variable name. When rendering a report, by default, all categories are displayed. All values in the list of stored values of the variable are selected. Also,values, for example **Grains/Cereals** and keys, for example [**5**] are displayed in the variable list . The picture below shows a list of variable values:




Because the **Allow User Values** parameter is not enabled, in this example, the user can only select values, stored in the variable, but cannot use their own values. Suppose the values such as **Beverages [1]**, **Confections [3]**, **Produce [7]** will be selected. Then, after clicking the **Submit** button, the generator will build a report, considering the filtering conditions and display entries **1**,**3**,**7**. Below is a report using a variable is shown:

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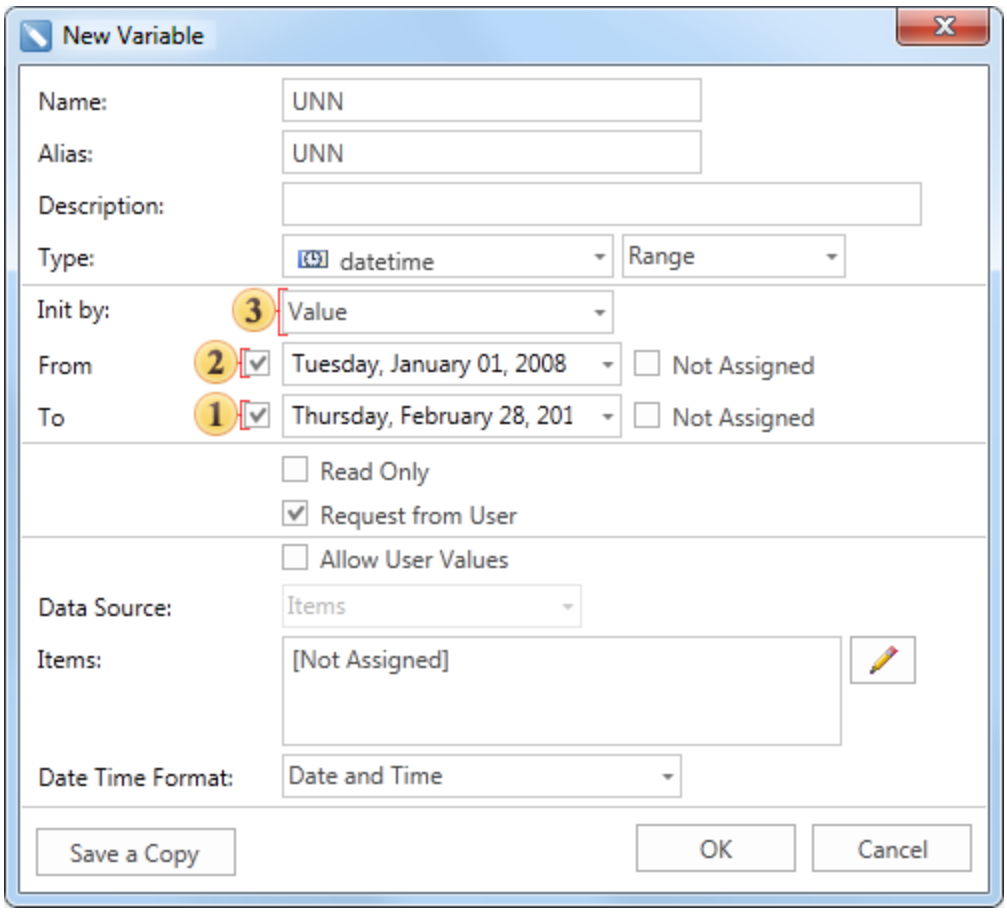
| | |
|---|---|
| 1 | Beverages<br>*Soft drinks, coffees, teas, beers, and ales* |
| 3 | Confections<br>*Desserts, candies, and sweet breads* |
| 7 | Produce<br>*Dried fruit and bean curd* |

### 6.1.4.5 Range

If using a variable of this type in the report, you can work with ranges of values. In this case, the variable will store a range of values. The picture below shows the New Variable dialog of the **Range** type:




1 The **Init by** field has a menu with the drop-down list. Depending on the selected item in this menu the type of the value in a variable is defined: Value or Expression, i.e. the method of initializing a variable as a value or expression is selected. In this example, the variable is initialized as a Value.
2 The **From** field. Specifies the starting value of the range. The value in this field is included into the values range. In our case the date **01/01/2008; 00:00:01** is specified.
3 The **To** field. Specifies the ending value of the range. The value in this field is included into the

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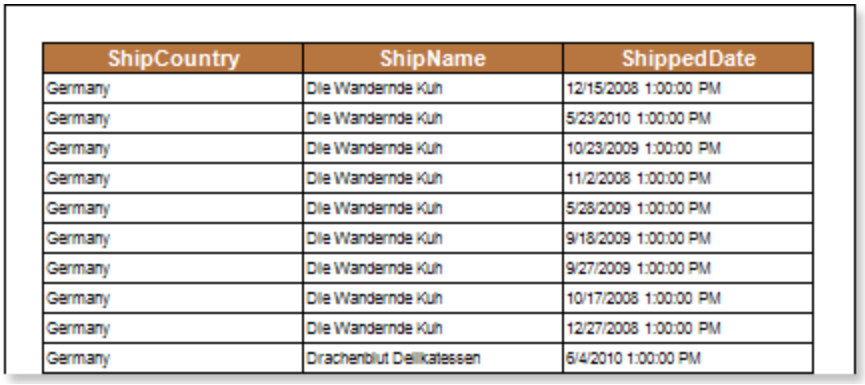
values range. In our case the date **12/31/2008; 23:59:59** is specified.

After clicking **OK**, the variable will be created. Here is an example of this type of the variable in the report. Suppose there is a report that contains information about orders: country, name and date of delivery. The picture below shows a report page:



| ShipCountry | ShipName | ShippedDate |
|---|---|---|
| Germany | Die Wandernde Kuh | 12/15/2008 1:00:00 PM |
| Germany | Die Wandernde Kuh | 5/23/2010 1:00:00 PM |
| Germany | Die Wandernde Kuh | 10/23/2009 1:00:00 PM |
| Germany | Die Wandernde Kuh | 11/2/2008 1:00:00 PM |
| Germany | Die Wandernde Kuh | 5/28/2009 1:00:00 PM |
| Germany | Die Wandernde Kuh | 9/18/2009 1:00:00 PM |
| Germany | Die Wandernde Kuh | 9/27/2009 1:00:00 PM |
| Germany | Die Wandernde Kuh | 10/17/2008 1:00:00 PM |
| Germany | Die Wandernde Kuh | 12/27/2008 1:00:00 PM |
| Germany | Drachenblut Delikatessen | 6/4/2010 1:00:00 PM |

If you want to display information about orders, which were processed in 2008, then use the variable created in the report. To do this, add a filter in the DataBand with the expression **Orders.ShippedDate** > **Variable1.FromDate** & & **Orders.ShippedDate** < **Variable1.ToDate**. When rendering a report, you will see only the information about orders that were processed in 2008. Below is a report with orders in 2008:

| ShipCountry | ShipName | ShippedDate |
|---|---|---|
| Germany | Die Wandernde Kuh | 12/15/2008 1:00:00 PM |
| Germany | Die Wandernde Kuh | 11/2/2008 1:00:00 PM |
| Germany | Die Wandernde Kuh | 10/17/2008 1:00:00 PM |
| Germany | Die Wandernde Kuh | 12/27/2008 1:00:00 PM |

It is worth noting that when referring to the start/end range value, if the **DateTime** data type is used, then to avoid additional changes, you can address to the **VariableName.FromDate** (or **VariableName.FromTime** if the **TimeSpan** data type is used) and **VariableName.ToDate** (or **VariableName.ToTime** if the **TimeSpan** data type is used).

### 6.1.4.6 Three Modes of Variable Functioning

Depending on the selected parameters the variable in the report can be operated in the following modes: autonomous, user (with selecting values), user (with inputting values). Let us consider these modes in more detail.

**Autonomous**

This mode will be applied if the **Request from User** parameter is disabled, i.e. using a variable in the report, no action will require from the user. Create a variable that will store the value 2 of the integer type with the name **UNN**. Use this variable in the report. The picture below shows an example of the rendered report:

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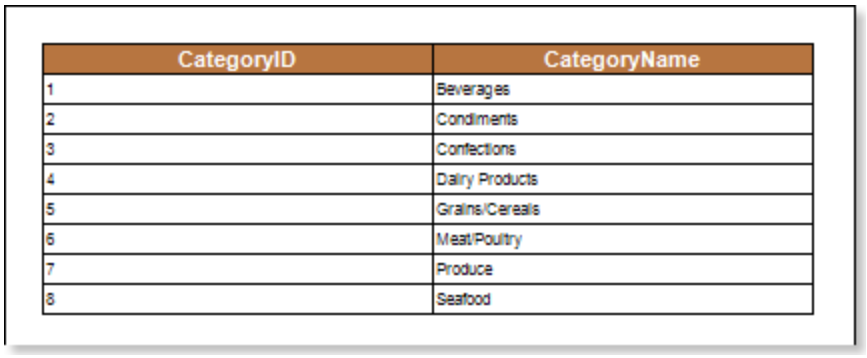
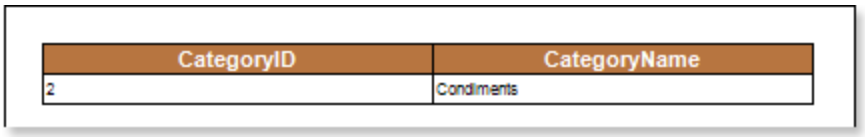


| CategoryID | CategoryName |
|---|---|
| 1 | Beverages |
| 2 | Condiments |
| 3 | Confections |
| 4 | Dairy Products |
| 5 | Grains/Cereals |
| 6 | Meat/Poultry |
| 7 | Produce |
| 8 | Seafood |

Add a filter in the **DataBand**, where specify the expression **Categories.CategoryID == UNN** as the filtering condition. Now when rendering a report, the report generator will consider the filtering condition and display only those entries which values in the column **CategoryID** be equal to the values, stored in the variable. In this case, it is the entry Condiments. The picture below shows an example of a report using a variable to filter data:

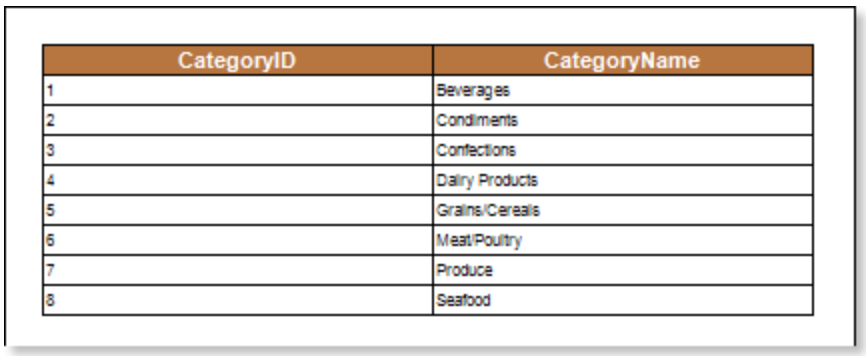


| CategoryID | CategoryName |
|---|---|
| 2 | Condiments |

In this case, when rendering a report, no action will require from the user.

**User (with selecting values)**

This mode of operation of the variable will be used if the **Request from User parameter** is enabled and the **Allow Users Values** is disabled. If using this variable in the report, there may need some actions from the user for selecting values from a variable list. Create the variable **UNN**, which will store a list of items from 1 to 8. Use this variable in the report. The picture below shows an example of the rendered report:



| CategoryID | CategoryName |
|---|---|
| 1 | Beverages |
| 2 | Condiments |
| 3 | Confections |
| 4 | Dairy Products |
| 5 | Grains/Cereals |
| 6 | Meat/Poultry |
| 7 | Produce |
| 8 | Seafood |

Add a filter in the **DataBand**, where the expression **Categories.CategoryID == UNN** is a filtering condition. Now, when report rendering, the value from the list will be selected in the viewer window. The picture below shows a list of variable values:

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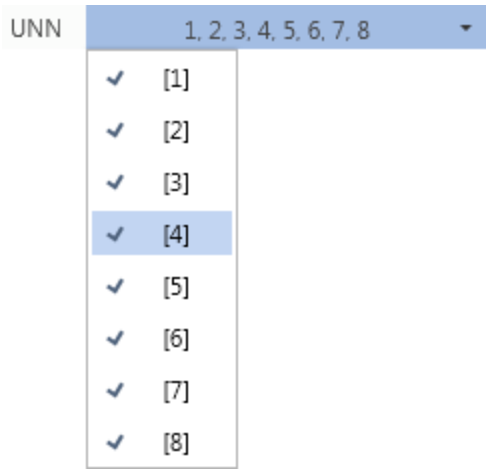
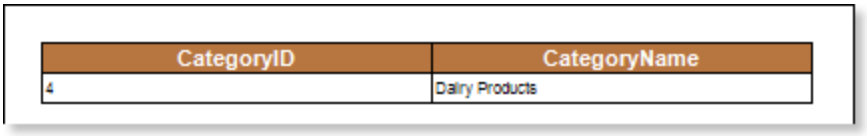



After selecting the value, click the **Submit** button to apply the selected value or the **Reset** button to reset the initial value in the list. The picture below shows the variable panel in the report:

When clicking the Submit button, the report generator will filter data and display these data, which **CategoryID** is equal to the selected value. The picture below shows an example of a report with the selected value **4**:



| CategoryID | CategoryName |
|---|---|
| 4 | Dairy Products |

The **Reset** button resets the current value and sets the first top value from the variable list.

**User (with inputting values)**
This mode of the variable will be applied if the **Request from User** and **Allow Users Values** is enabled. When using this mode, selecting or entering values in the variable field will require from the user. Create a variable type of **List** with the name **UNN**, and specify the column **CategoryID** as keys and values. The picture below shows an example the rendered report:

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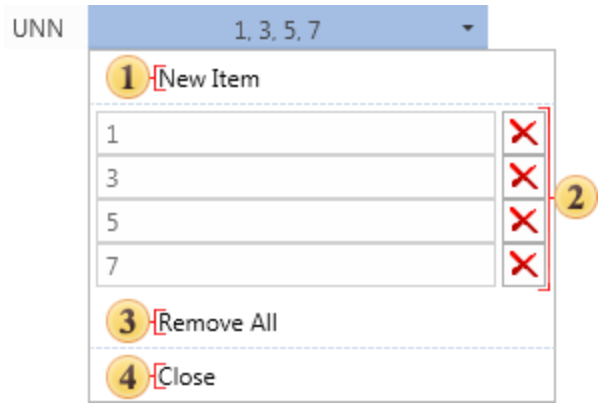
| CategoryID | CategoryName |
|---|---|
| 1 | Beverages |
| 2 | Condiments |
| 3 | Confections |
| 4 | Dairy Products |
| 5 | Grains/Cereals |
| 6 | Meat/Poultry |
| 7 | Produce |
| 8 | Seafood |

Add a filter in the **DataBand**, where as the filter condition, specify the expression **UNN.Contains (Categories.CategoryID)**. Now, when rendering a report, it is necessary to edit the list of values of the variable (remove unwanted items, or change the key in the item field, or create a new item) in the viewer window. The picture below shows an edited list of the variable:




1. The **New Item** button. Creates a new item with the field in which to specify a key;
2. The **Remove** buttons. Remove the item to which they belong. Each item in the list has such a button.
3. The **Remove All** button. Removes all items from the list;
4. The **Close** button. Closes this menu saving items and input keys.

After that, click the **Submit** button. Now the report generator will filter data and display the data which the **CategoryID** is equal to keys specified in the fields in the list of the variable values. The picture below shows the filtered report:

| CategoryID | CategoryName |
|---|---|
| 1 | Beverages |
| 3 | Confections |
| 5 | Grains/Cereals |
| 7 | Produce |

The **Reset** button, in this case, resets the current list of values to the original one.

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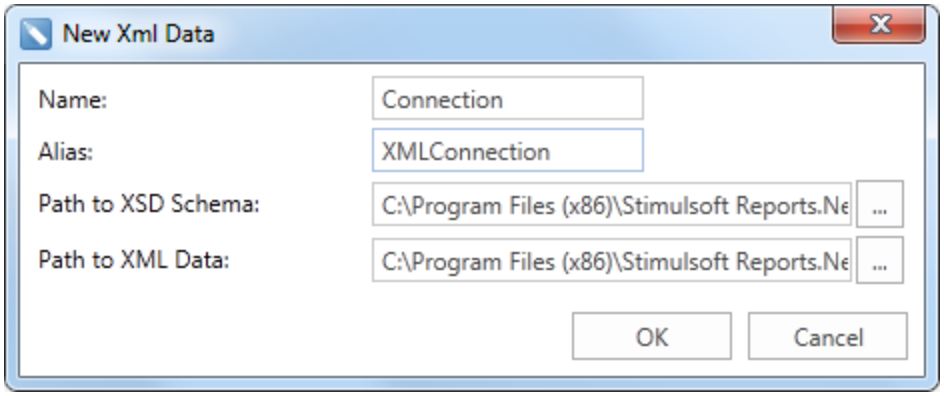
## 6.1.5 Connection

The **Connection** object of the data dictionary describes the report parameters that are used to retrieve data from the database. Stimulsoft Reports supports many types of connection object. All types can be divided into two groups: built-in ones that are included into the report generator, and external data adapters that can be downloaded from our website here.

**Built-in data adapters**

To create a new built-in connection it is necessary to call the **Select Type Of Connection** dialog. This window can be opened from the **Dictionary** tab, selecting **New Connection...**, as well as from the **New Data Source** dialog by clicking the **New Connection...** After selecting the connection type, press the **OK** button. Depending on the type of connection a dialogue form will be displayed. If you choose an XML connection type, then the following dialog will appear (see the picture below - New Xml Data. Fill the Name, the path to the XSD schema and XML data. Also specify the connection alias.




If to choose any other type of connection, the dialog box will be a **New *type* connection**, in which set the connection **Name** and **String**. Also specify the connection **Alias**. The picture below shows the **New OleDB Connection** dialog box:

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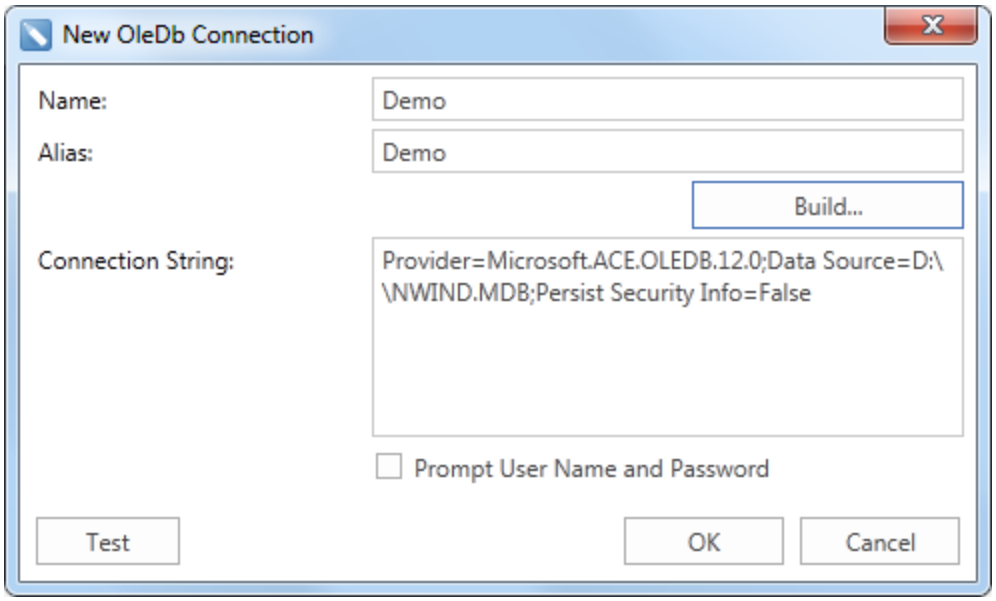
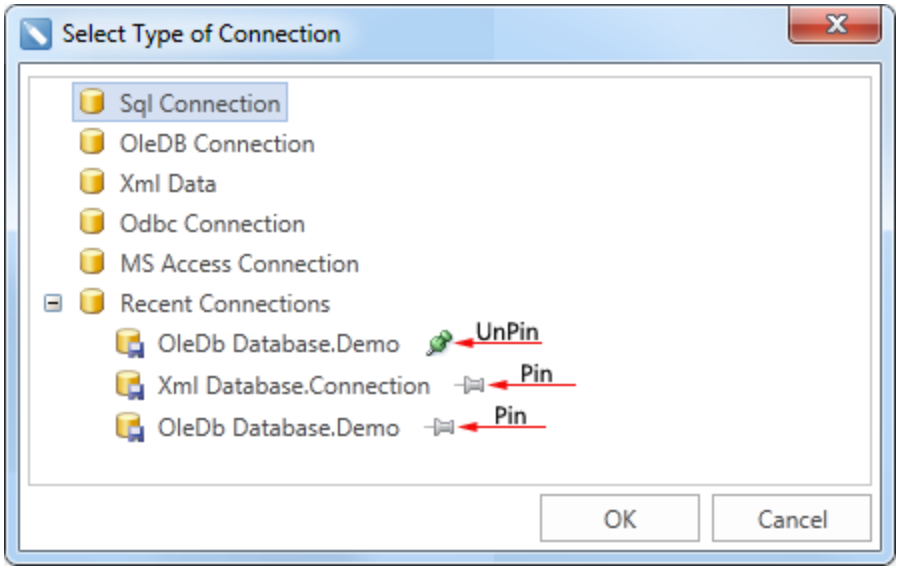



There is a list below with built-in connection types:

- **SQL** - this connection describes the parameters to access the Microsoft SQL Server database;
- **OleDB** - connection describes the parameters to access databases via the OleDB driver;
- **ODBC** connection describes the parameters to access databases via the ODBC driver
- **Xml** connection describes the parameters to access XML files;
- **MS Access** connection describes the parameters to access the MS Access database;

The picture below shows the **Select Type Of Connection** window:




**Recent Connection tab**

Also in the **Select Type Of Connection** window we can find a **Recent Connections** folder, which contains previously established connections. At the same time it can contain up to 15 connections.

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When creating subsequent connections, the first connection will be overwritten and so on. If you need the connection never be overwritten, set write protection for it, you should click the Pin icon. In order to remove the write protection, you must click UnPin icon (see the picture above). When selecting a connection from the **Recent Connections** folder, the next dialog box is **New xml Data** when choosing previously created **xml** connection, or **New *type* connection**, when any other type is chosen, with already filled fields. If necessary, empty fields may be edited.

### External adapters

In addition to the basic types of connections, there are also external data adapters that provide connection to the following databases:

- **Firebird**;
- **IBM Db2**;
- **MySQL Connector.Net**;
- **MySQL CoreLab**;
- **Oracle**;
- **Oracle Data Provider for .NET**;
- **PostgreSQL**;
- **PostgreSQL CoreLab**;
- **Sybase Advantage Database Server**;
- **Sybase Adaptive Server Enterprise**;
- **SqlCe**;
- **SQLite**;
- **VistaDB**;
- **Uni Direct**;
- **dot Connect Universal**;
- **Informix**;
- **EffiProz**.

Consider the example of creating a connection to an external data adapter. Download the external data adapter from our website. In our example, we downloaded the MySQL Connector.Net adapter. Unpack the archive into a temporary directory and run the project. Add references to assemblies **Stimulsoft.Report.dll**, **Stimulsoft.Controls.dll**, **Stimulsoft.Base.dll** and **Stimulsoft.Editor.dll** in the running project and compile the project. Copy the compiled **dll** files to the **bin** folder, and in the beginning of the program add the following code:

```
StiConfig.Services.Add(new Stimulsoft.Report.Dictionary.StiMySqlAdapterService());
StiConfig.Services.Add(new Stimulsoft.Report.Dictionary.StiMySqlDatabase());
```

To attach an assembly file to **Designer.exe**, place this assembly file in the same directory in which the **Designer.exe** is located. Furthermore, it should provided an access to a data provider assembly. Thereafter, in the **Select Type Of Connection** dialog a new type of connection will be available, in our case, **MySQL Connector.Net**. There are no restrictions on the number of connections created for various types of data sources in report generator.

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### 6.1.6 Panel Setup

The panel (see the picture below) contains controls that provide an opportunity to change auxiliary parameters of the data dictionary.

1 If the option **Create Field on Double Click** is enabled, then when double clicking the data column data in the report data dictionary, the report template in the DataBand will create a text component with reference to this data column;
2 The parameter **Create Label** is used to create two text components (one with the signature, the a second with reference to the data column) when dragging a data column into the report. If this option is disabled, then, when dragging, only one text component with reference to a data column will be created;
3 In order to show the alias instead of the name, enable the option **Use Aliases**. If this option is disabled, it will display a name of the element.

### 6.1.7 System Variables

**Stimulsoft Reports** offers to use system variables in expressions. System variables are variables which provide information about the current status of a report. The following system variables are available:

- **Column** – Returns the current column number (starts from 1);
- **Line** – Returns the current line number (starts from 1). Used for numbering lines in reports. Numbering for each group goes separately;
- **LineThrough** – Returns the current line number (starts from 1). Unlike the **Line** variable it returns lines from the beginning of the report, without report groupings;
- **LineABC -** Returns the alphabetical analog of the current line number;
- **LineRoman -** Returns the current line number in Roman numerals;
- **GroupLine** - Returns the current group line number (starts from 1);
- **PageNumber** – Returns the current page number (starts from 1). Used for numbering pages;
- **PageNumberThrough** - Returns the current page number (starts from 1). When the **PageNumberThrough** is used, the **ResetPageNumber** property is ignored and numbering starts from the beginning of a report.
- **PageNofM** – Returns a localized string, showing "Page N of M" where N is the current page number and M is the **TotalPageCount** of a report:

```
Page {PageNumber} of {TotalPageCount}
```

This variable is a combination of system variables **PageNumber** and **TotalPageCount**, i.e. will output the sequence number of a page in respect of the total number of pages.

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**PageNofMThrough -** Returns a localized string, showing "Page N of M" where N is the current page number and M is the TotalPageCount of a report. When the **PageNofMThrough** property, the **ResetPageNumber** property is ignored and numbering starts from the beginning of a report.
**TotalPageCount** – Returns the number of pages in a report;
**TotalPageCountThrough -** Returns the number of pages in a report;
**IsFirstPage** - Returns true, if, in the current moment, the first page of a report is printed;
**IsFirstPageThrough -** Returns true, if, in the current moment, the first page of a report is printed. When calculating the **IsFirstPageThrough**, all **ResetPageNumber** properties are ignored and numbering starts from the beginning of a report. For correct calculation of a variable it is required to execute two passes.;
**IsLastPage** - Returns true, if, in the current moment, the last page of a report is printed. For correct calculation of a variable it is required to execute two passes;
**IsLastPageThrough -** Returns true, if, in the current moment, the last page of a report is printed. When calculating the **IsLastPageThrough**, all **ResetPageNumber** properties are ignored and numbering starts from the beginning of report. For correct calculation of a variable it is required to execute two passes.;
**ReportAlias** - Returns the alias of a report. You can change the **ReportAlias** with help of the **ReportAlias** property of a report;
**ReportAuthor** - Returns the author of a report. You can change ReportAuthor with help of the ReportAuthor property of a report;
**ReportChanged** -The Date when a report was changed;
**ReportCreated** - The Date when a report was created;
**ReportDescription** - Returns the description of a report. You can change the ReportName with help of the ReportDescription property of a report;
**ReportName** - Returns the name of a report. You can change the ReportName with help of the ReportName property of a report;
**Time** – Returns the current time;
**Today** – Returns the current date;

### 6.1.8 Business Object

A **Business object** is an object of the data class that can be used to represent data in various structures: tables, lists, arrays, etc. In order to create a description of the business object in the data dictionary, you need to select **New Business Object...** in the context menu of the data dictionary or in the menu **New Item**. After selecting this command the first dialog box of New Business Object will be opened. The picture below shows the first dialog box New Business Object:

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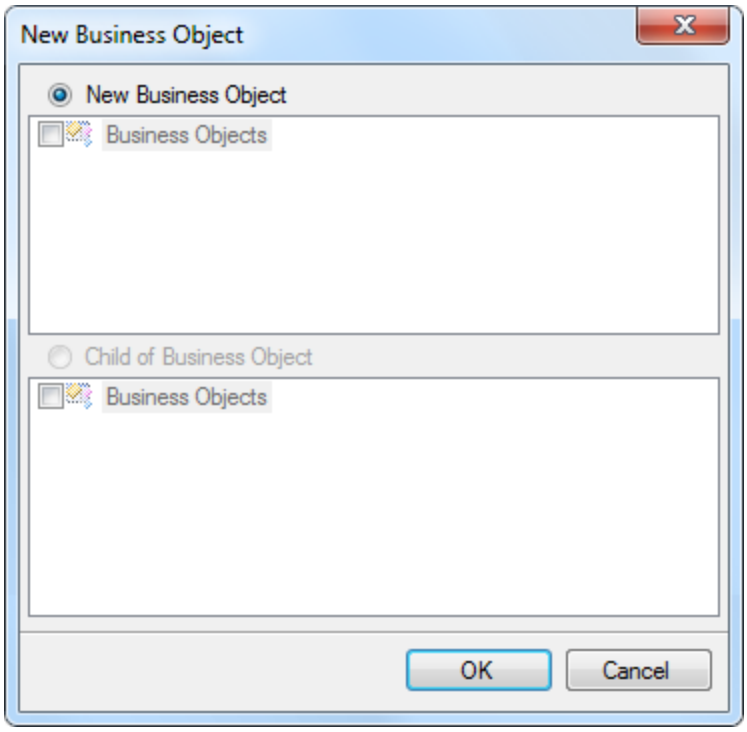


It should be noted that a child business object can be created for each business object. To do this, select the business object and call the command **New Business Object...** Then, the first dialogue box of New Business Object will be called, in which the option Child of Business Object will be checked. After you click OK in that dialog box, the second dialog box will be opened. There you should specify the parameters of the new business object. The picture below shows the second dialog box of **New Business Object**:

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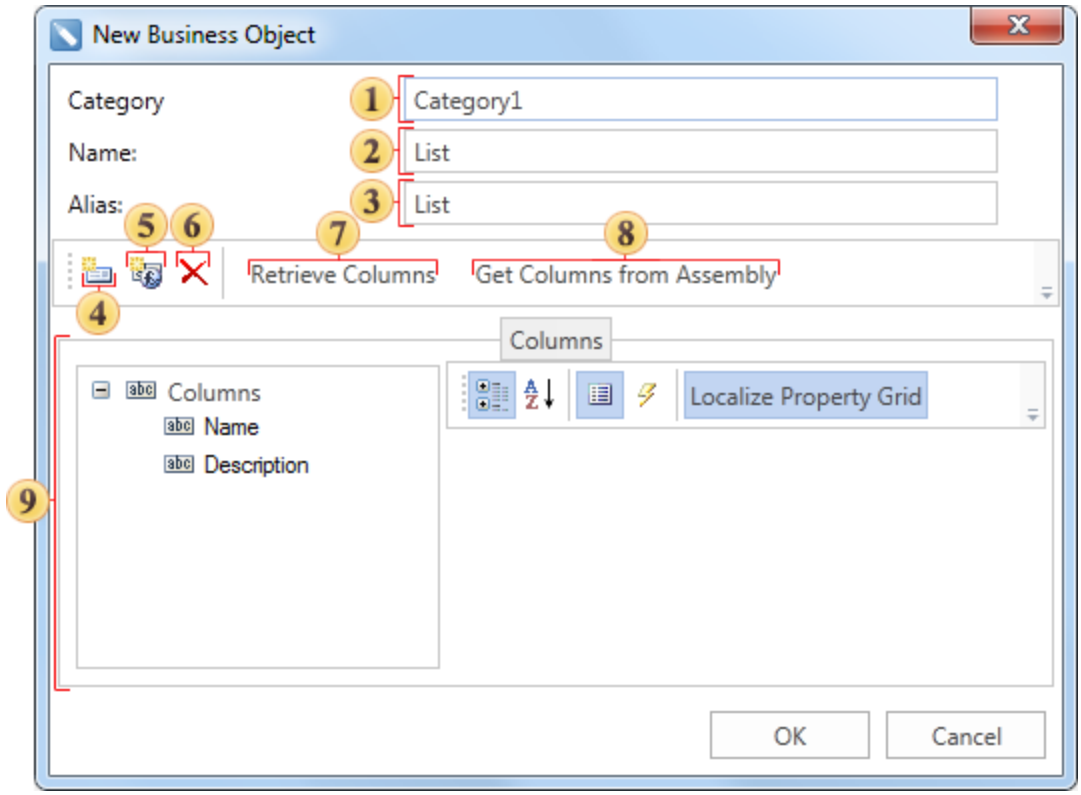


1 In the field **Category** you can specify the name of the category. If this field is filled, then the category of business objects in the report dictionary will be created. If the field is left blank, the category will not be created. When you create a child business object this field is not editable.
2 The field **Name** is used to specify the business object. This field must be filled and, in this case, the name List is used.
3 The field **Alias** specifies the alias of the business object. If it will not be changed by the user, then, by default, the alias is the same as the name of the business object. In our case, it is List.
4 The button **New Column**. When you click it, a new data column will be created in the business object. It should be noted that the data column created this way is the virtual one, and does not contain actual data.
5 When you click the button **New Calculated Column**, a new calculated column will be inserted into the business object.
6 When you click the button **Delete**, the selected data column will be deleted. If the tab Columns is selected, it will remove all the columns, which are located in the tab.
7 The button **Retrieve Columns** is used to get a data column from the business object.
8 The button **Get Columns from Assembly** will open the dialog Open Assembly, in which you select an assembly file. After selecting the file, press the button Open and data columns (if they are present there) will be extracted from that file.
9 The panel **Columns** has three fields. These fields show a list of columns, their properties and description

**Note**. The Business object created this way does not contain actual data. Therefore, when rendering a report using this business object the error will occur. The Business object with the real data is generated and passed from the code.

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# 7 Report Designer

The report designer is a standalone application that is a part of Stimulsoft Reports product and is used to create and modify reports. The UI of this component provides the user with a great set of tools, components, and tools to develop reports, visually design and preview them.

## 7.1 Ribbon UI

**Ribbon** interface 2013, based on the tabs (similar to **Microsoft Office 2013**). The tabs are grouped instruments, thereby reducing the number of toolbars. Consider this type of interface in more detail.

### 7.1.1 Main menu

The basic **Ribbon** 2013 interface is a **Ribbon** 2013 panel. The picture below shows how it looks like:

The main element of the **Ribbon** panel is the **Application Button** and the menu that is called by pressing this button. This is a main menu of the report designer. Basic commands for work with reports in the report designer are represented in the menu. The picture below shows a menu of the application and its items.

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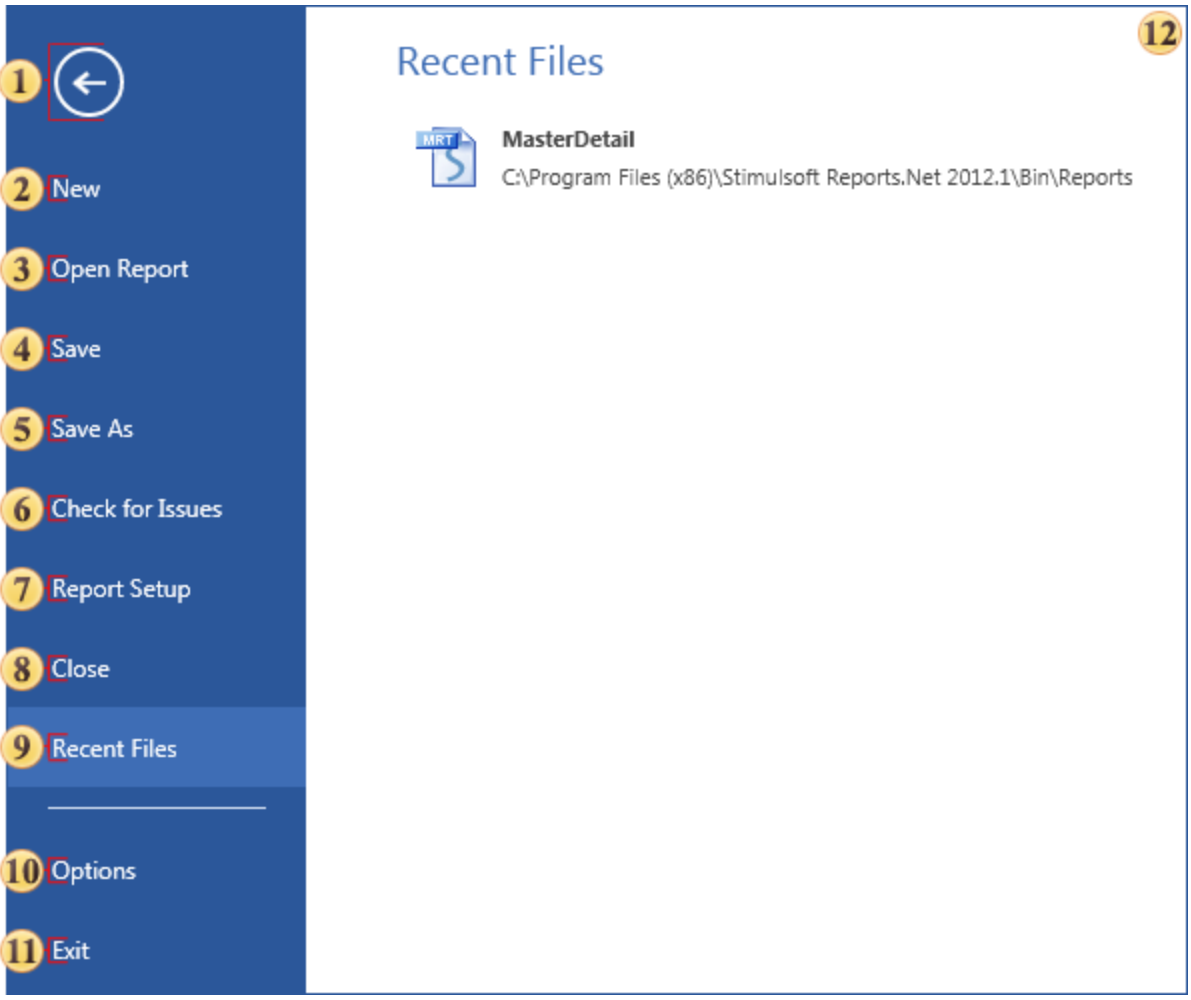


1 Exit button from the main menu
2 The New menu item contains submenu where a list of new report components is available for creation is shown.
3 The Open Report menu item. When calling this menu item, a dialog for opening a report will appear.
4 The Save Report menu item saves changes in a report. If a report was not changed previously, then the Save Report As menu item will be called automatically.
5 The Save Report As menu item. When calling this menu item, a dialog for saving a report will appear.
6 Call the Report Checker tool.
7 Call the Report Setup window of report options.
8 Close a report that is opened in the reports designer.
9 The Recent Documents menu item contains submenu where recently opened reports are shown.
10 The Options menu item calls a window for designer parameters settings.
11 The Exit button closes a report designer.
12 The panel shows a submenu of selected menu item or selected group.

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### 7.1.1.1 Menu Item New

The command **New** contains a submenu, which displays the methods and options for creating reports. The picture below shows the submenu of the command **New**:

1. The **Blank Report**. A blank report is opened in the report designer.
2. The **Standard Report** wizard. Used to create reports as a list.
3. The **Master-Detail Report** wizard. Used to create a Master-Detail reports.
4. The **Label Report** wizard. Used to create Label reports.
5. The **Chart** wizard. Used create reports with charts.
6. The **Cross-Tab** wizard. Used to create Cross-Tab reports.

### 7.1.1.2 Dialog Report Setup

If to select the **Options** item in the submenu of the **Report** group, then the **Report Setup** window is invoked that allows you to identify the basic information and report parameters. The picture below

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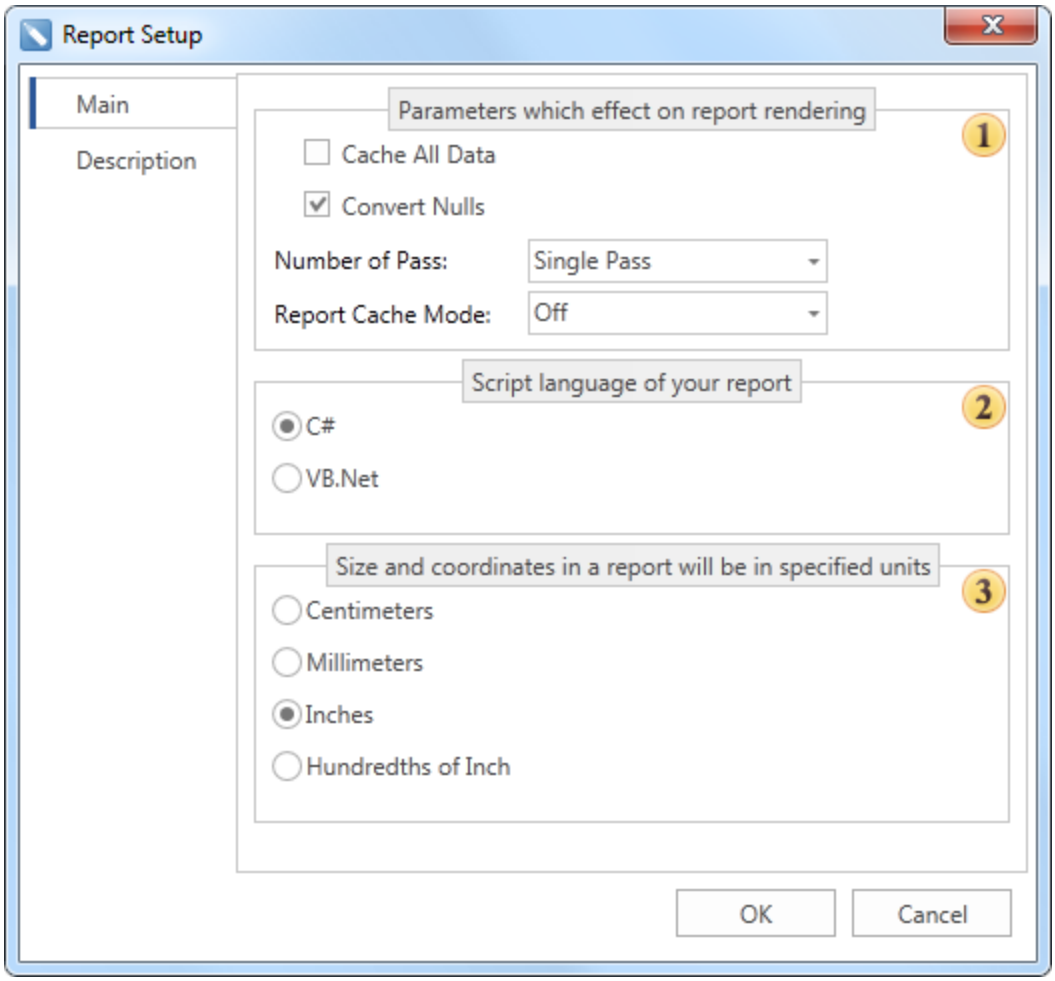
shows the **Report Setup** dialog:




As can be seen from the picture above, the editor of the report parameters contains two tabs: **Main** and **Description**. The **Main** tab is represented by three groups, which define the most important parameters of the report:

1 In this group, basic parameters that affect the designing of the report are defined.
2 This group defines a scripting language of a report. You may switch between C# and VB.NET.
3 In this group you may select units of the report.

The **Description** tab defines information of report parameters. The picture below shows the **Description** tab:

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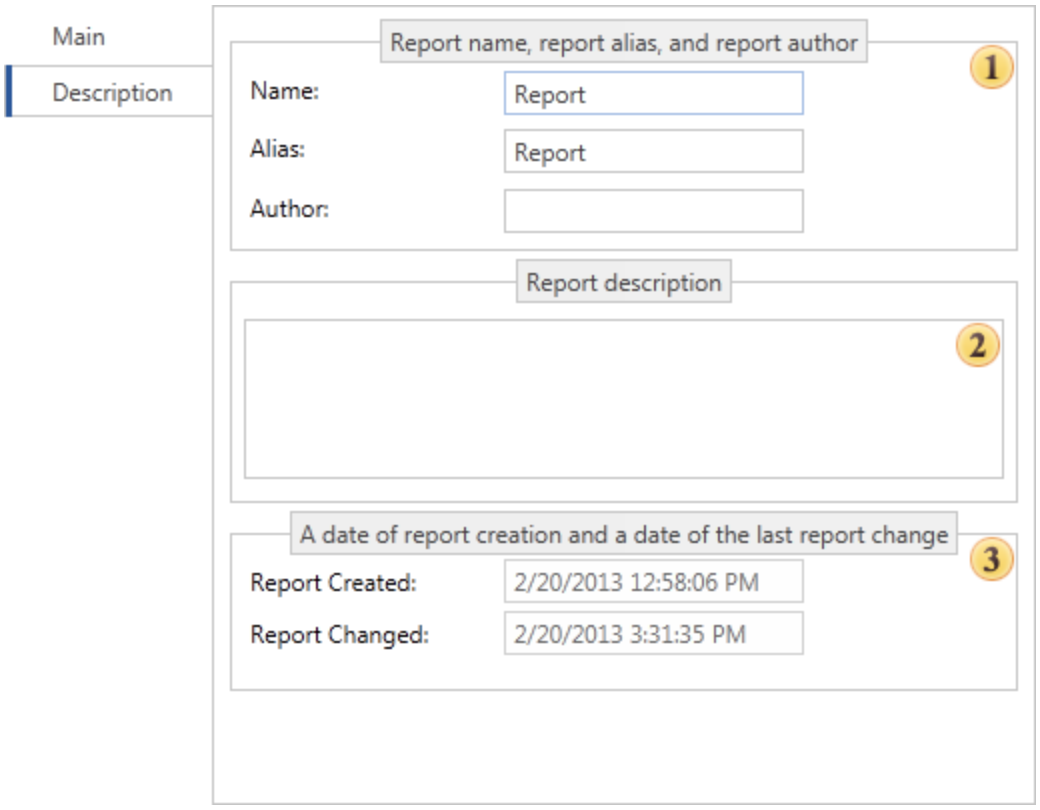


As can be seen from the picture above, the **Description** tab is represented by three groups:
1 A group of names. In this group the **Name**) and **Alias** of a report are specified, as well as the **Author's** name of the report.
2 A group of the report description. In this group the report description is defined.
3 This group is not available for editing and displays temporary information: when the report was created **(Report Created)** and the date of last modification of the report **Report Changed**.

### 7.1.1.3 Dialog Options

If to select the **Options** item in the submenu of the **Designer** group, then the **Options** window is invoked where you can do basic settings and information settings of a report. The picture below the **Options** dialog box:

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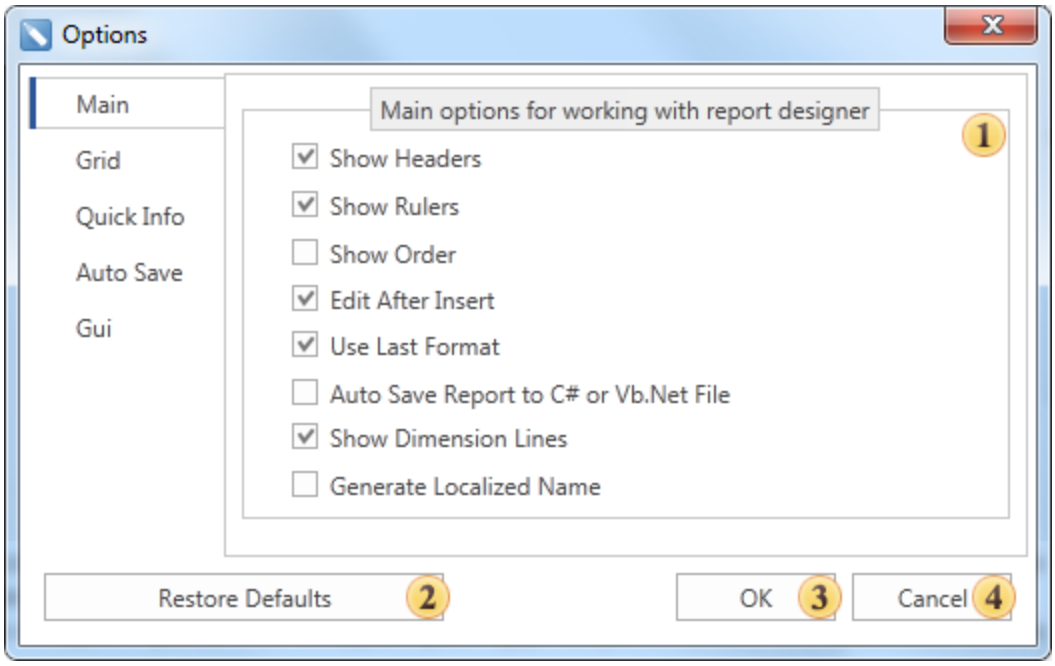


As can be seen from the picture above, the **Options** dialog box contains five tabs: **Main**, **Grid**, **Quick Info**, **Auto Save**, **Gui**. The **Main** tab is represented by one 1, which has the basic options of a designer such as:

- The Show Headers option enables/disables displaying headers of components of the report.
- The **Show Rulers** option enables/disables displaying rulers.
- The **Show Order** option enables/disables displaying the order number of the report component.
- The **Edit After Insert** option enables/disables invoking the editor after creating a component in the report.
- The **Use Last Format** option enables/disables using the latest format of a component.
- The **Auto Save Report to C # or VB.NET File** option enables/disables auto-saving of a report as a source file. This source file will be saved together with a report in the .mrt file.
- The **Show Dimension Lines** option enables/disables the dimension lines.
- The **Generate Localized Name** option enables/disables the mode of creating a component with localized names. If this option is disabled, then the components are created with names in English. If included, then the component name will be localized according to the selected language.

The **Grid** tab defines the parameters of displaying a grid.

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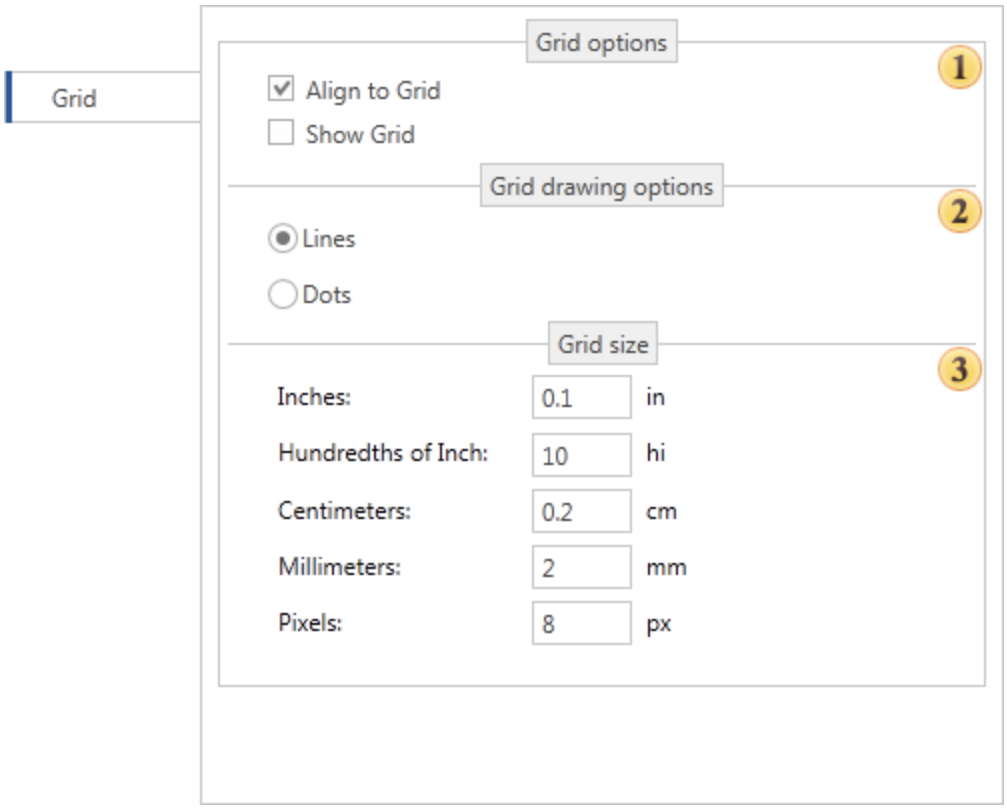
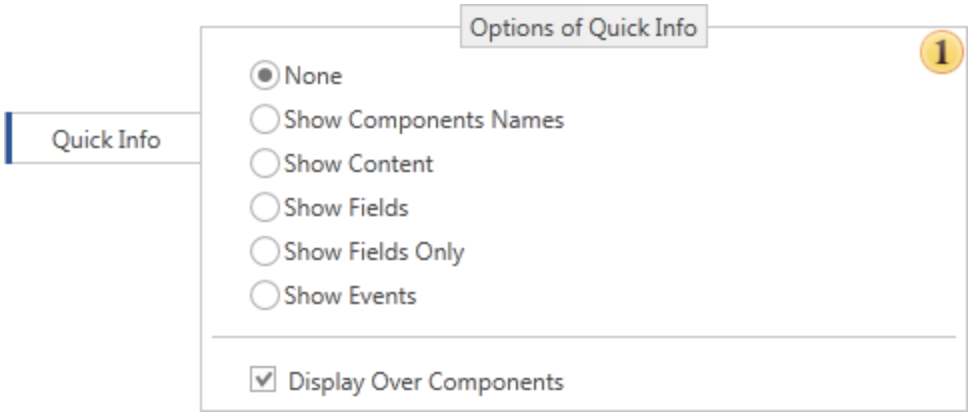



As can be seen from the picture above, this tab consists by three groups:
1 The **Grid Options** group includes such parameters as: **Align to Grid** snaps a report component to grid; **Show Grid** enables/disables the grid.
2 The **Grid drawing options** group. The grid style can be applied in this group: **Lines** or **Dots**;
3 The **Grid size** group. This group sets the grid spacing in different units: **Inches**, **Hundredths of Inch** , **Centimeters**, **Millimeters**, **Pixels**.

Parameters of quick info messages are defined in the **Quick Info** tab.




As can be seen from the picture above, this tab contains a single group 1, which defines the following parameters:
The Options of Quick Info option specifies what information you want to display.

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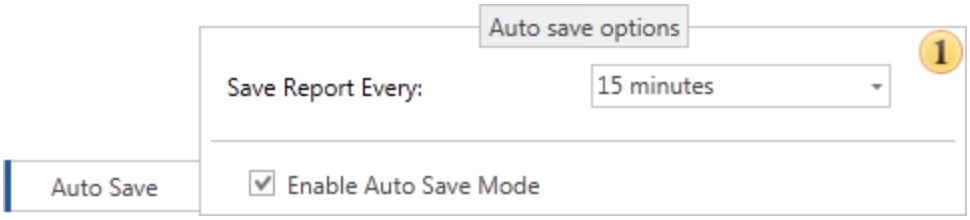
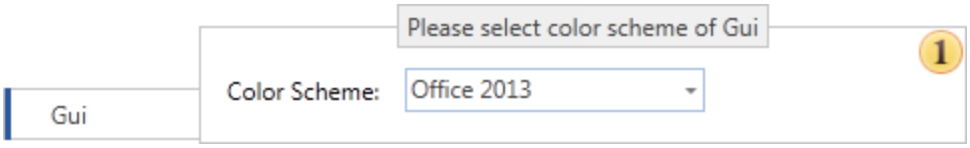
The Display Over Components option enables/disables the mode of displaying the quick info in the foreground, i.e. over all components.

The **Auto Save** tab contains the parameters responsible for the report auto-saving.




This tab contains a single group 1, which contains the following options:
The **Save Report Every** option determines the time interval after which an auto-save event occurs.
The **Enable Auto Save Mode** option enables/disables the auto-save mode of the report.

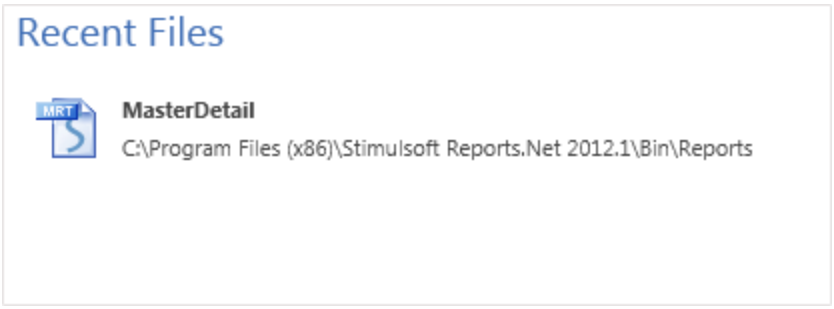
Interface options of the designer are defined on the **Gui** tab.




This tab contains a single group 1 and one **Color Scheme** parameter, which is required to change the type of interface and/or color theme.

#### 7.1.1.4 Recent Documents

The **Recent Documents** group contains a list of recently loaded documents in the designer. The picture below shows the submenu of the **Recent Documents** group.




## 7.1.2 Tabs

Tab is a part of the interface on which the toolbar. At the designer shows four tabs: **Home**,**Page**, **Layout**. Consider these tabs and the main instruments are located on them more.

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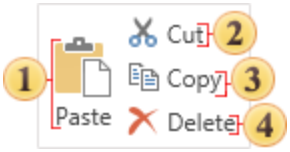
### 7.1.2.1 Tab Home

This is a basic tab of the reports designer. Main commands for customizing report components are placed on this tab.

#### 7.1.2.1.1 Group Clipboard

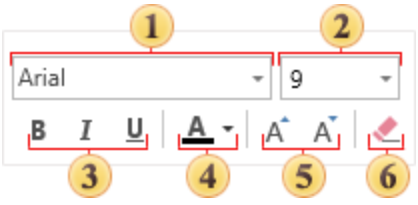
This group allows working with the Clipboard of the report designer.




1. Paste components from the Clipboard on the current page of a report.
2. Cut the selected components from the current page to the Clipboard.
3. Copy the selected components on the current page to the Clipboard.
4. Delete selected components on the current page.

#### 7.1.2.1.2 Group Font

This group is used to output text with the specified font type, color etc.




1. Select the font type of the text components on the current page.
2. Select font size of the text components on the current page.
3. Sets the font style as Bold, Italic, Underlined.
4. Set the font color of the text components on the current page.
5. Changes (increases/decreases) the font size.
6. Delete the content of all selected text components.

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#### 7.1.2.1.3 Group Borders

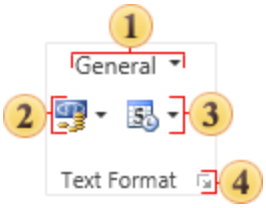
This group contains the commands to setup border components.

All commands can be applied to selected components on the current page.

1. Sets or removes borders from all sides of a component.
2. Sets or removes borders from each side of a component.
3. Sets a border color of a component.
4. Sets the shadow of a component.
5. Sets a background color of a component.
6. Sets a type of the border line.

#### 7.1.2.1.4 Group Text Format

The group to control text formatting.




1. Select text format.
2. Select symbols of currency.
3. Set one of the predefined formats to output a text.
4. Call a form of formats editing.

#### 7.1.2.1.5 Group Styles

This group is used to control styles and conditions which are used to automatically design components in a report.

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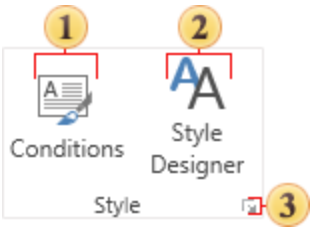



1. Opens a window of the Conditions Editor for selected components.
2. Opens a window of Styles Editor.
3. Calls a form of styles editing.

#### 7.1.2.1.6 Group Alignment

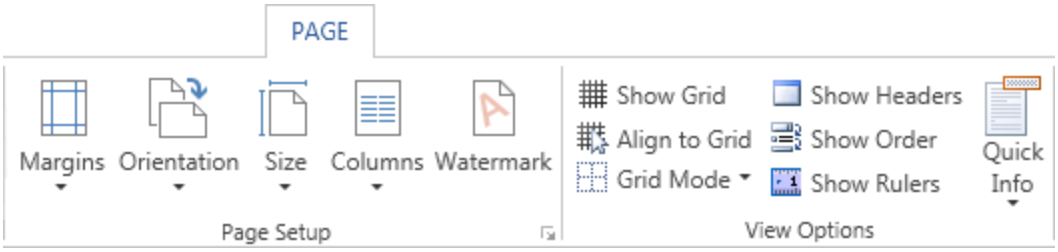
The group is used to align the content of components horizontally and vertically. Also it is possible to set the angle of the text rotation and control the **WordWrap** property.

All commands are applied to selected components on the current page.

1. Align top, center vertically and bottom the content of a component.
2. The angle of the text rotation. This command can be applied only to the text component.
3. Align left, center, right or justify the content of a component.
4. Used for the WordWrap property of the text component.

### 7.1.2.2 Tab Page

This tab is used to control page parameters.




#### 7.1.2.2.1 Group Page Setup

This group contains elements to control basic parameters of a page. These are page margins,

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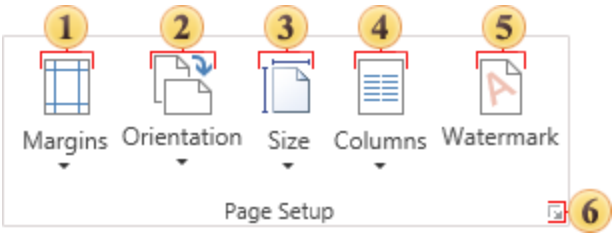
orientation, page size, columns.

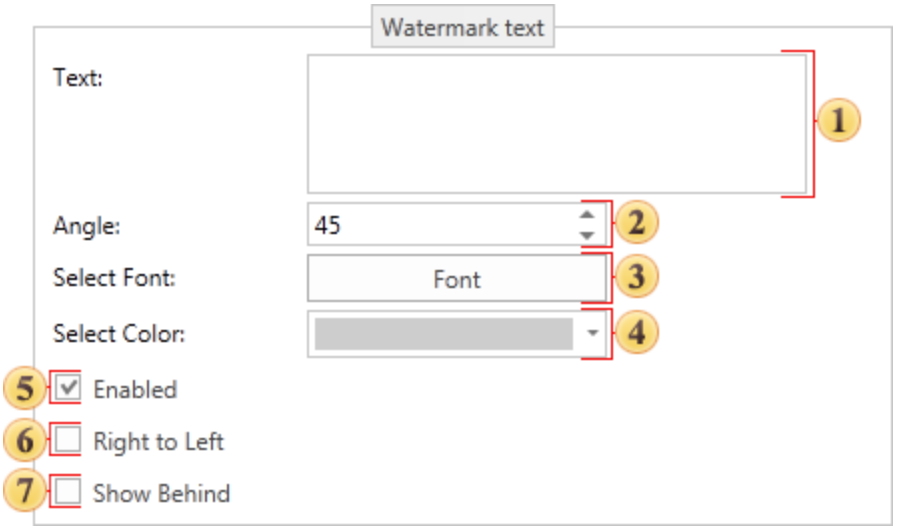



Changes can be applied to the currently selected page in the report designer.

1. Select sizes of page margins.
2. Select Portrait or Landscape orientation of a page.
3. Select page size.
4. Select number of columns on a page.
5. Set a watermark on a page.
6. Invokes the Page Setup dialog window.

#### 7.1.2.2.2 Group Watermark Text

This group is used to customize the watermark text.




1. Watermark text
2. Set a rotation angle of the watermark text
3. Select a font type to output a text of the watermark
4. Watermark text color.
5. Enabling/disabling watermark.
6. Set the direction of the watermark output.
7. Show the watermark behind the text

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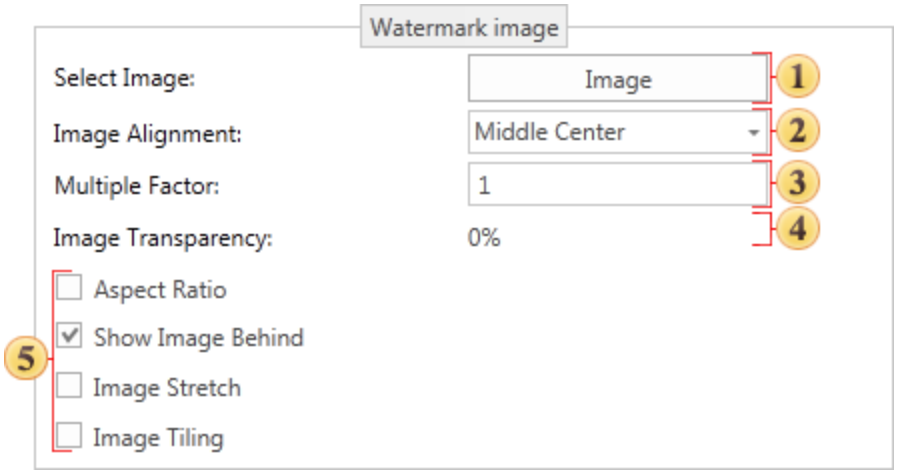
#### 7.1.2.2.3 Group Watermark Image

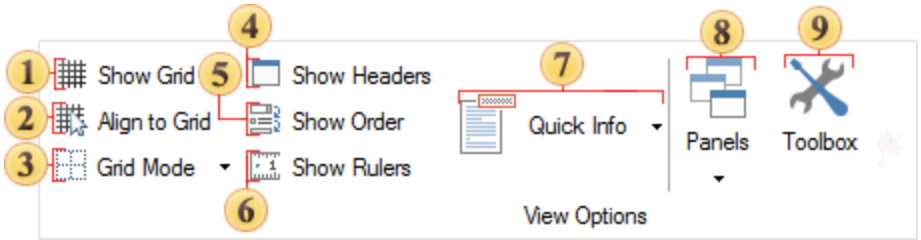
This group is used to customize the watermark image.




1. Load an image for the watermark
2. Align the watermark image
3. Sets the number of watermarks
4. Set the image transparency
5. Other watermark options

#### 7.1.2.2.4 Group Viewing Options

This group contains settings for different parameters of showing a report and working with the reports designer.




1. Control showing grid on a page.
2. Control automatic alignment of components by the grid.
3. Select grid type.
4. Show/hide headers of bands.
5. Show/hide the order of placing components on a page.
6. Show/hide rulers on a page.
7. Control Quick Info.
8. In this menu, you can enable/disable the following panels: **Properties**, **Data Dictionary**, and **Report Tree**.
9. This button enables/disables displaying the Toolbox.

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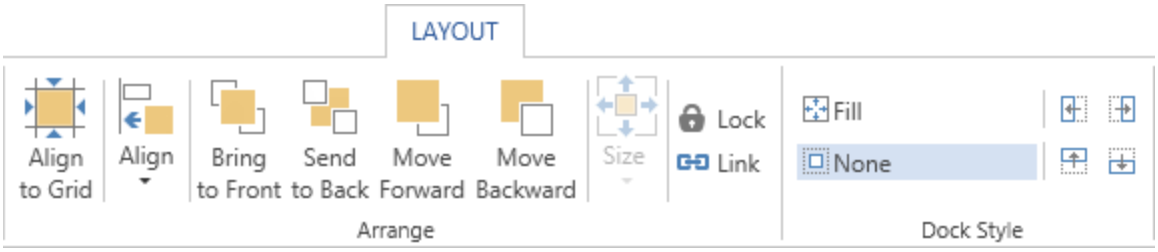
**Notice**. This group is not always present on the tab Page. In the WinRT report designer and Mobile, the group is missing.

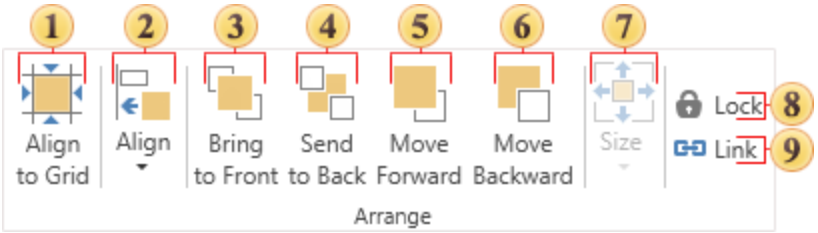
### 7.1.2.3 Tab Layout

This tab is used to control placing different components on a page and also to specify styles of docking components.




#### 7.1.2.3.1 Group Arrange

The group contains a lot of commands to change position of components on a page. The picture below shows this group.




1 Align all selected components to the page grid.
2 Align selected components. This element contains submenu and short description in this topic below.
3 Bring selected components to Front.
4 Send selected components to Back.
5 Move selected components on one level forward.
6 Move selected components on one level backward.
7 Choose the size of selected components. It contains submenu and is described in this topic below.
8 Control the Lock property.
9 Control the Link property.

The description of the **Align** button, specified with number 2 on the picture above.

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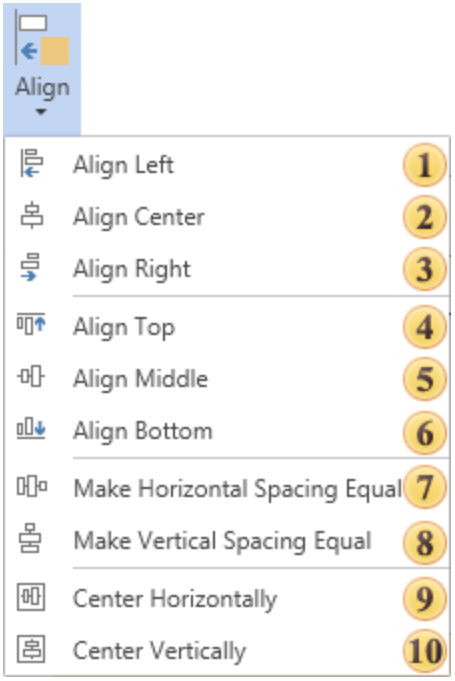
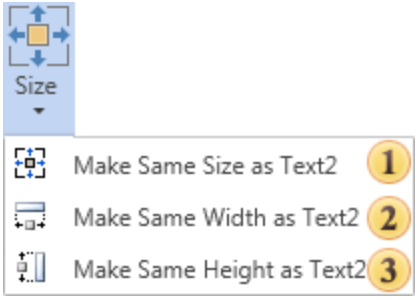



1. Align all selected components to their common left margin.
2. Align horizontally all selected components to their common center.
3. Align all selected components to their common right margin.
4. Align all selected components to their common top margin.
5. Align vertically all selected components to their common center.
6. Align all selected components to their common bottom margin.
7. Make horizontal spacing of selected components equal by their width.
8. Make vertical spacing of selected components equal by their height.
9. Center all selected components horizontally.
10. Center all selected components vertically.

The description of the **Size** button, specified with number 7 on the topmost picture.




1. Make the same size of components as the size of the first selected component.
2. Make the same width of components as the size of the first selected component.
3. Make the same height of components as the size of the first selected component.

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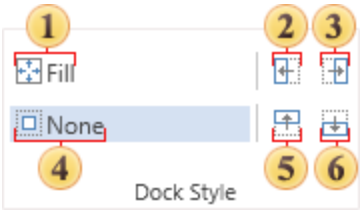
7.1.2.3.2 Group Dock Style

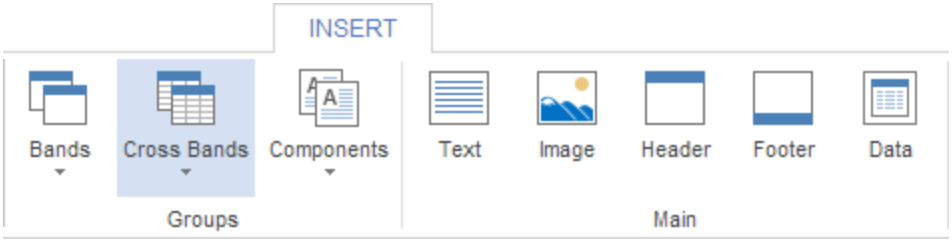
This group contains elements to set the dock style of selected components.




1. Dock selected components to all edges.
2. Dock selected components to the left edge.
3. Dock selected components to the right edge.
4. Removes dock style of selected components.
5. Dock selected components to the top edge.
6. Dock selected components to the bottom edge.

### 7.1.2.4 Tab Insert

The tab **Insert** contains the main components for creating reports. This tab is present in the designer WinRT and Mobile, and is analogous to the **Toolbox** in other designers.




## 7.1.3 Status Bar

Status bar is placed under the designer window. The picture below shows a status bar of the **Standard** UI.

The bar contains 4 sections:

1. Units. This field shows current units in a report. It is possible to change them
2. Report Checker checks the report on issues
3. The field shows a name of the currently selected component
4. Shows cursor coordinates on a page of a report template. (X:0,0 ; Y:0,0) coordinates corresponds to the top left corner of a page of a report template

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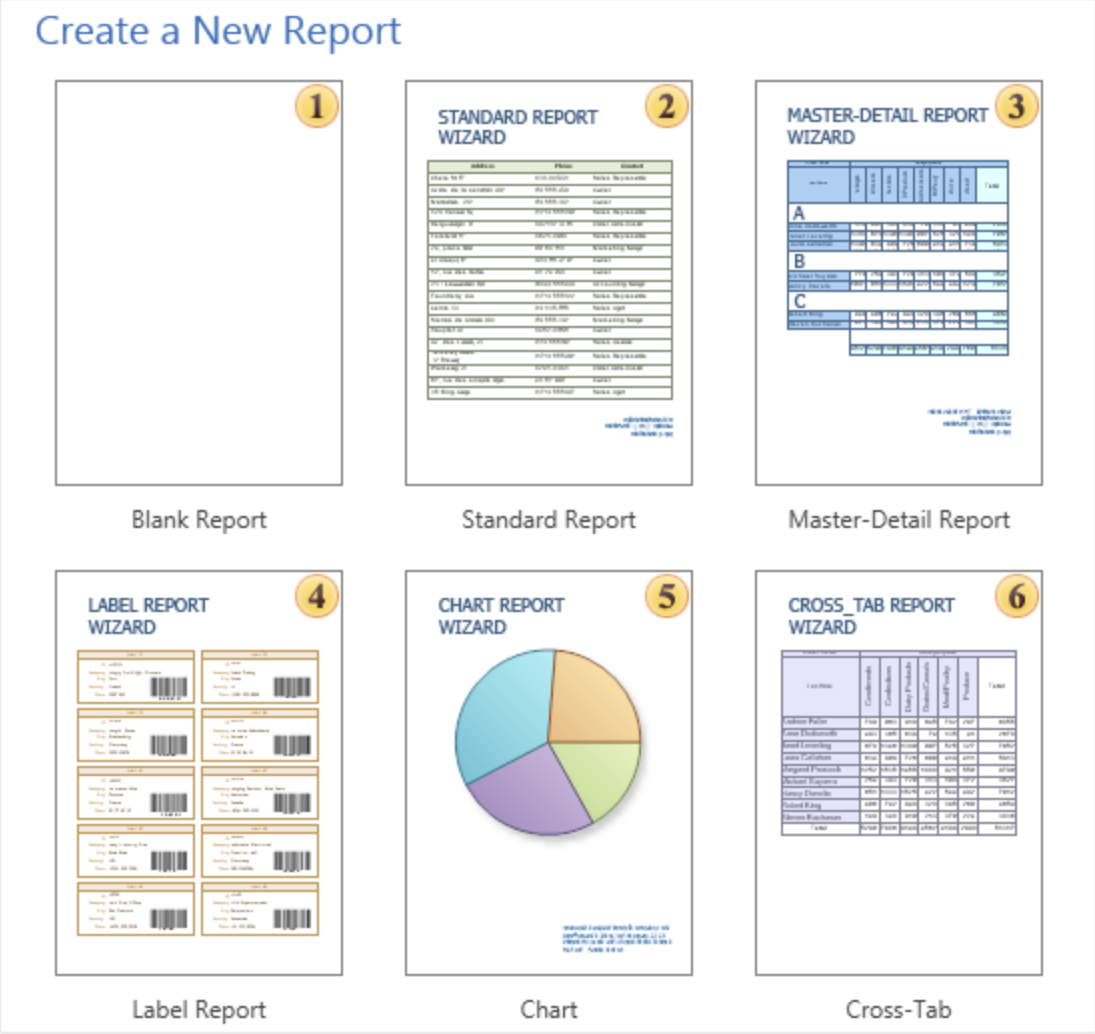
5 Page Zooming control.

## 7.2 Creating Reports in Designer

A report in the designer can be created using the tools for creating reports and report components. Also, you can create a report using Report Wizards: Standard Report, Master-Detail Report and Label Report.

### 7.2.1 Overview

When creating a new report in the **New Report** dialog you should choose a way to create a report. The picture below shows the **Create a New Report** dialog:




As can be seen from the picture above, there are several ways of creating a report: select a **Blank Report**, and manually create a report template, or create a report using the report wizards.

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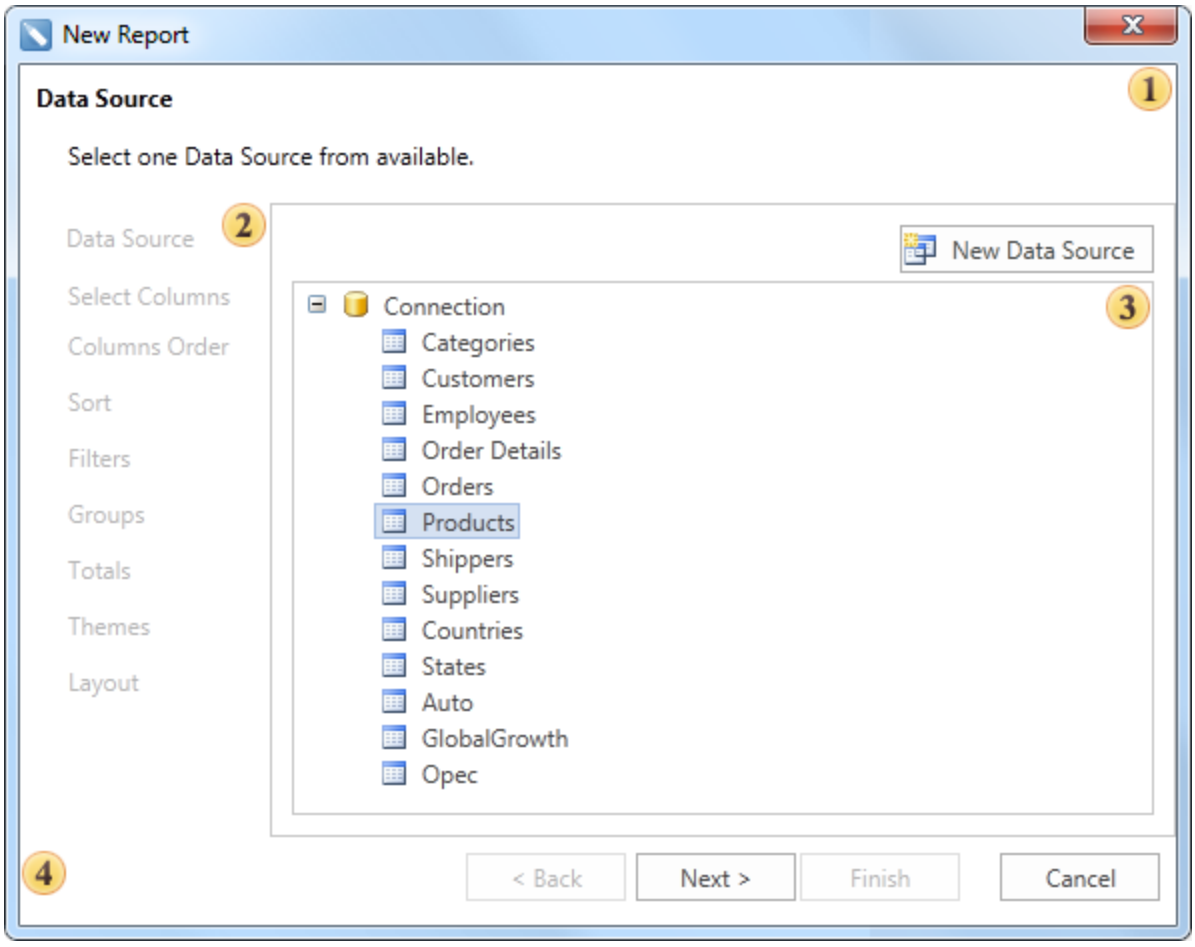
- The **Blank Report** icon can be used to create a blank report and the user should put components manually.
- The **Standard Report** wizard is used to create reports as a list.
- The **Master-Detail Report** wizard is used to create a **Master-Detail** reports.
- The **Label Report** wizard is used to create Label reports.
- The **Chart** wizard is used to create reports with charts.
- The **Cross-Tab** wizard is used to create Cross-Tab reports.

Any **Report Wizard** has the following panels: **Description Panel**, **Steps Panel**, **Selection Parameters Panel**, **Control Panel**. The picture below shows the **Standard Report** wizard:




1. The **Description Panel**. This panel shows description of each steps to be done.
2. The **Steps Panel**. Shows steps of creating reports using a report wizard.
3. The **Selection Parameters Panel**. This panel shows report parameters. On each step of report creation its own options are available.
4. The **Control Panel**. Contains buttons to control the **Report Wizard**.

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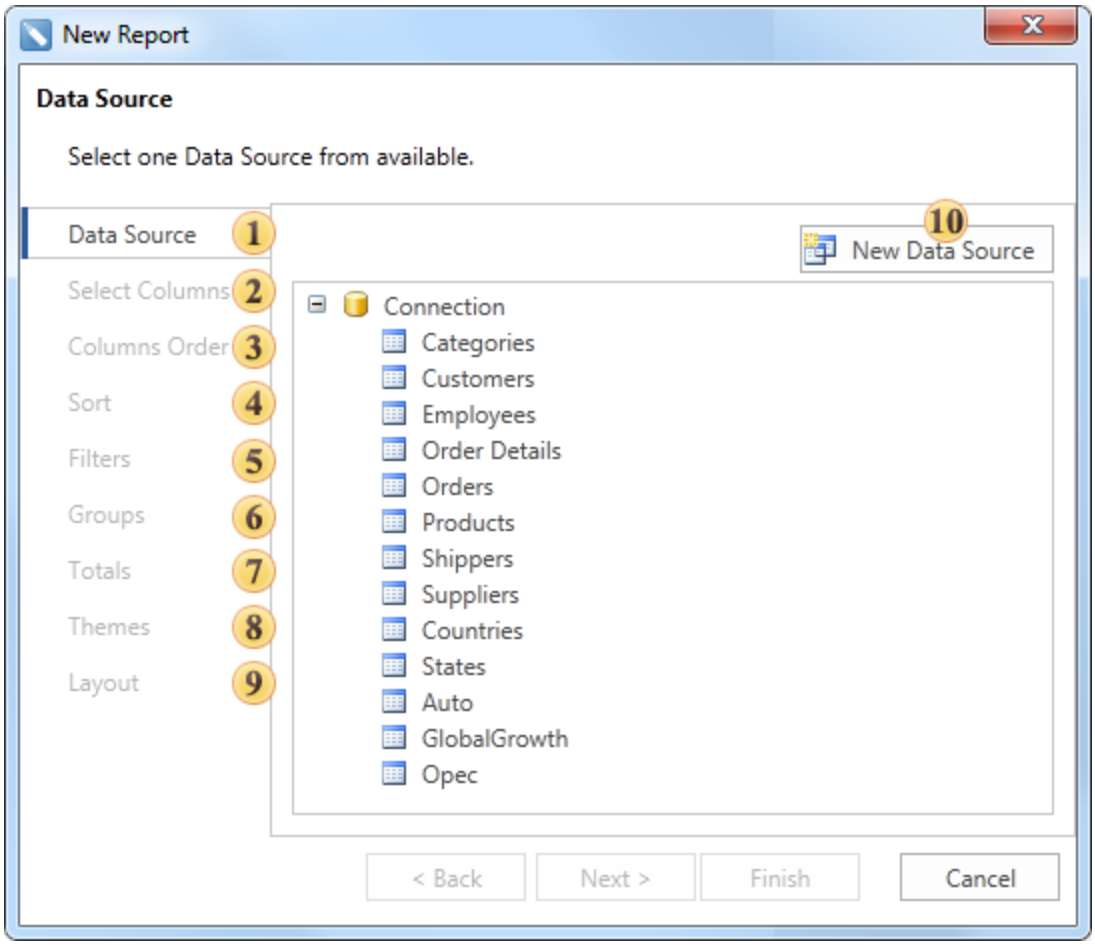
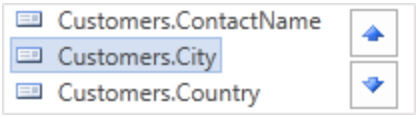
### 7.2.1.1 Wizard Standard Report

When creating a report using the **Standard Report** wizard, this report will contain one **DataBand** or one data **Table** (depends on what is selected). The picture below shows a window of the **Standard Report** wizard:




1 **Data Source**. On this step the data source is defined. This step is obligatory.
2 **Select Columns**. On this step columns of a data source are selected. This step is obligatory.
3 **Columns Order**. This step defines position of columns in the **DataBand**. Data columns selected in the second stage will be shown as a list on the **Selection Parameters Panel**. The top-down order of columns shown in the panel corresponds to their left-to-right position in a report. It is possible to change the position of data columns by dragging them or by clicking the buttons on the control panel of this step. The picture below shows the order of columns on the **Selection Parameters Panel**:




4 **Sort**. On this step, it is possible to specify elements and sorting direction. The picture below shows a sample of the **Selection Parameters Panel** of sorting:

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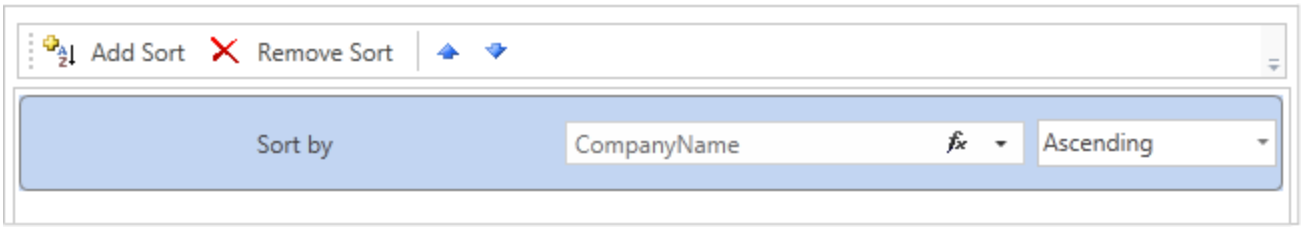
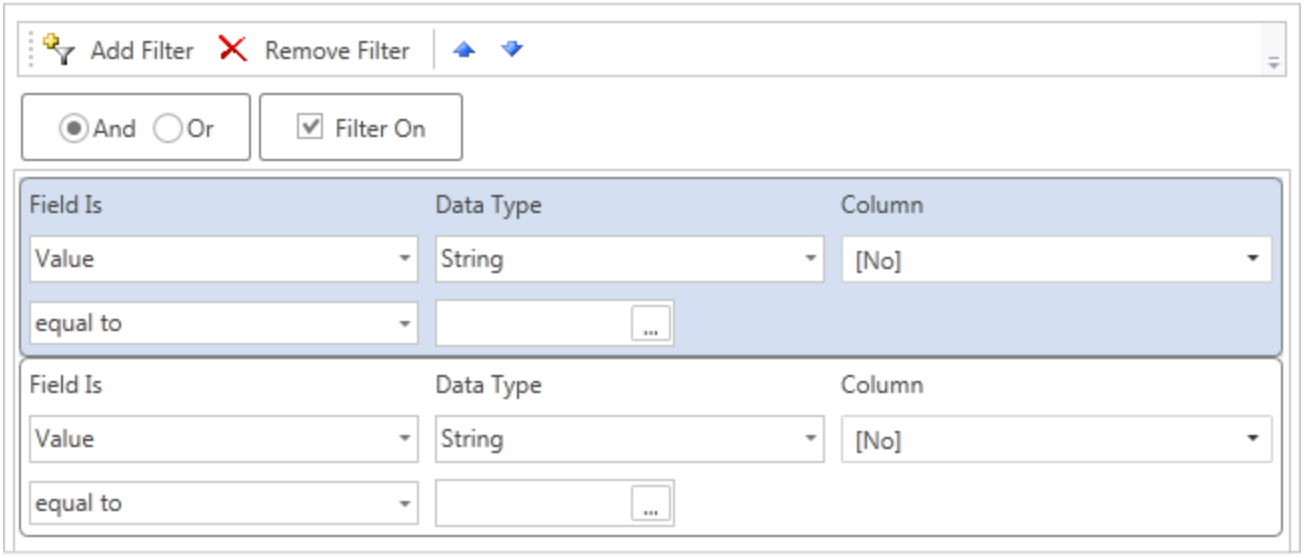



5 **Filters**. On this step, it is possible to set the conditions of filtering. The picture below shows a sample of selection filtering parameters:




6 **Groups**. This step defines the condition of grouping. It is necessary to select a data column by what conditions of grouping will be created.
7 **Totals**. On this step, it is possible to select a function for calculating totals by any data source column. For each data column its own function of aggregation can be set.
8 **Themes**. This step defines the report style.
9 **Layout**. On this step, the basic report options are set. Among them are: page **Orientation**, script **Language**, a **Component** that will be used for report rendering (DataBand or Table), report **Units**. The picture below shows a sample of the **Selection Parameters Panel** layout:

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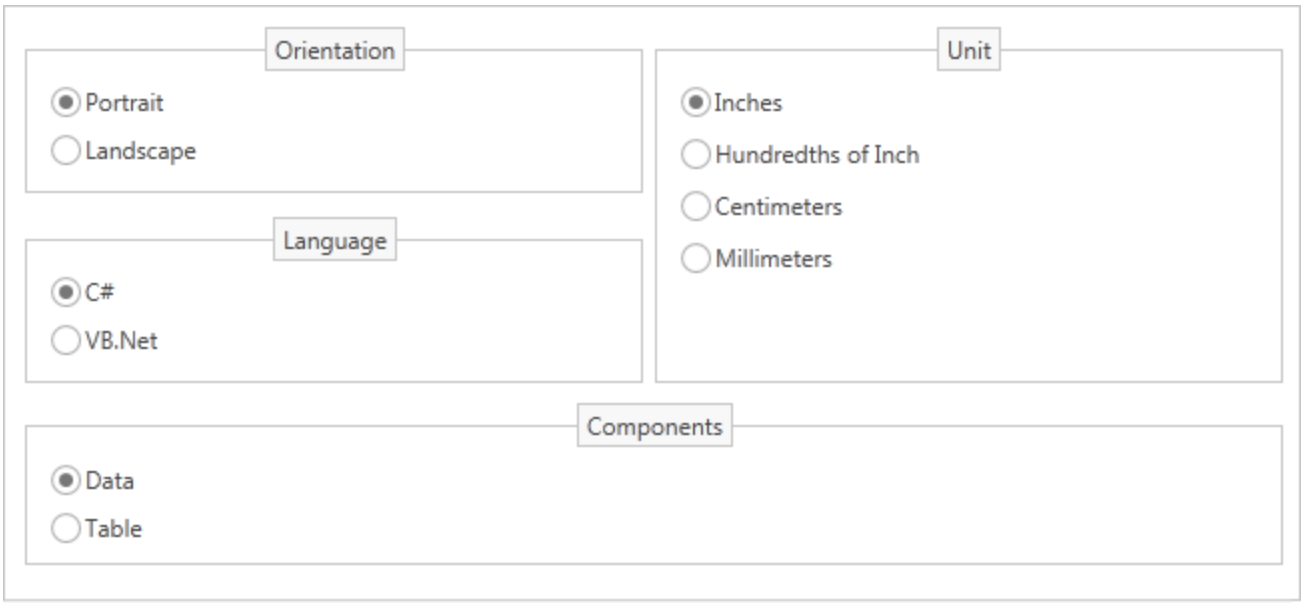


10 The **New Data Source** button is used to create a new data source.

#### 7.2.1.2 Wizard Master-Detail Report

The **Master-Detail** report can be created using the **Master-Detail Report** report wizard. The picture below shows a window of the **Master-Detail Report** wizard:

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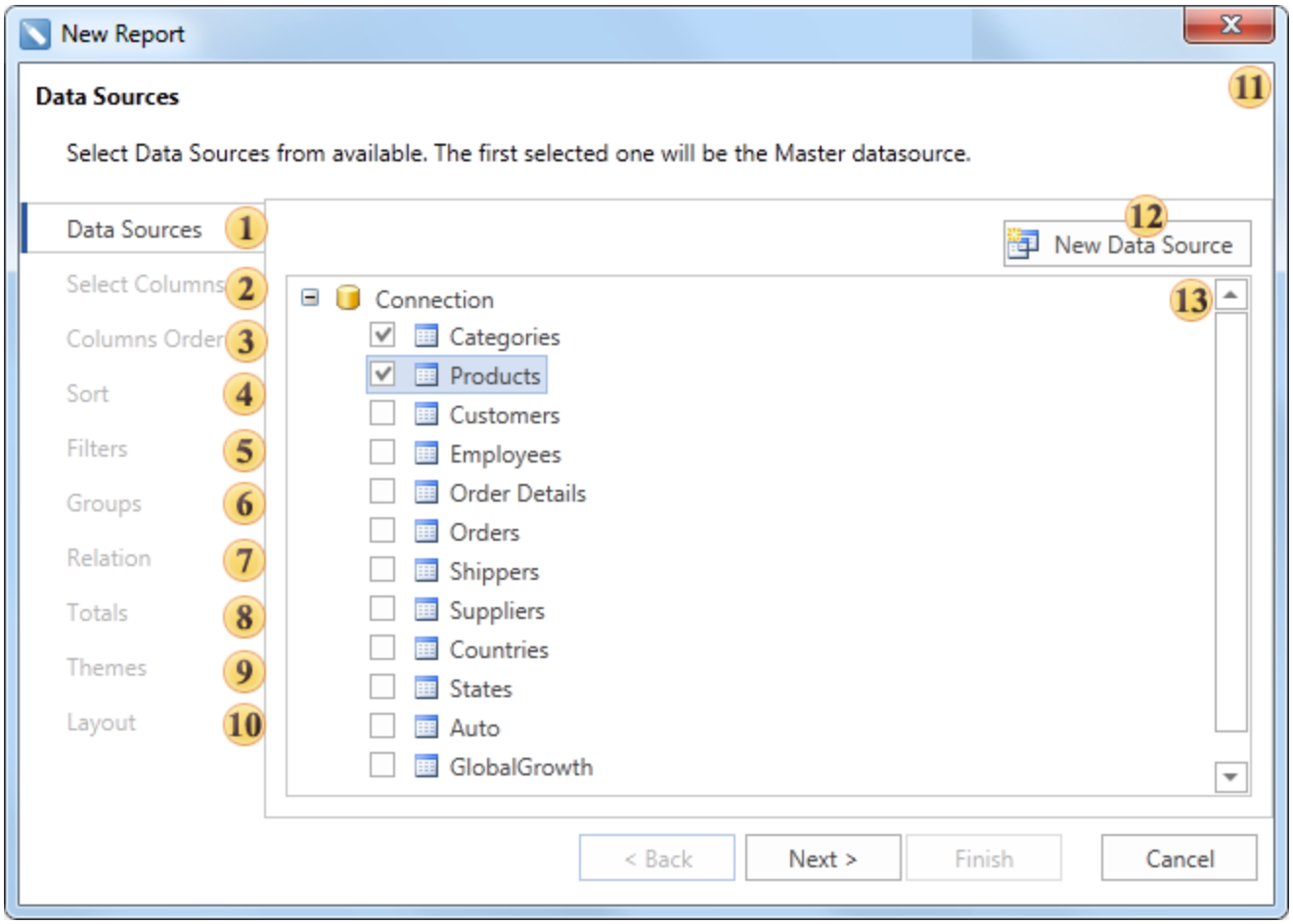
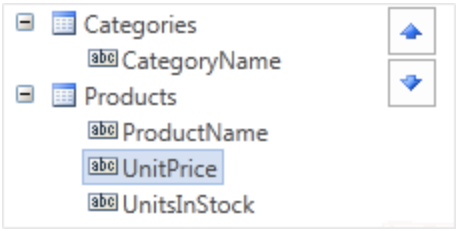



1 **Data Source**. On this step the data source is defined. This step is obligatory. For creating the **Master-Detail Report**, the report template should have no less than one **Master** band and one **Detail** band.

2 **Select Columns**. On this step columns of a data source are selected. This step is obligatory.

3 **Columns Order**. This step defines the order of columns. Data columns selected in the second stage will be shown as a list on the **Selection Parameters Panel**. The top-down order of columns shown in the panel corresponds to their left-to-right position in a report. It is possible to change the position of data columns by dragging them or by clicking the buttons on the control panel of this step. The picture below shows the order of columns on the **Selection Parameters Panel**:




6 **Groups**. This step defines the condition of grouping. It is necessary to select a data column by what conditions of grouping will be created.

7 **Relation**. defines the relation between **Master** and **Detail** bands. The relation is used for selecting

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detail data only for the specified **Master** band row. If a relation will not be specified then all **Details** data rows will be output for each row of the **Master** band. Selection is done between relations which are created between **Master** and **Detail** data sources, and where a **Detail** data source is a detail data source. More than one relation can be. So it is necessary to select the correct relation.

8 **Totals**. On this step, it is possible to select a function for calculating totals by any data source column. For each data column its own function of aggregation can be set.

9 **Themes**. This step defines the report style.

10 **Layout**. On this step, the basic report options are set. Among them are: page **Orientation**, script **Language**, a **Component** that will be used for report rendering (DataBand or Table), report **Units**.

11 The **Description Panel**. Shows description for the current step.

12 The **New Data Source** button is used to create a new data source.

13 The **Selection Parameters Panel** shows options, actions, settings available on this step.

#### 7.2.1.3 Wizard Label Report

The **Label Report** wizard is used to create reports which have labels. The picture below shows a window of the **Label Report** wizard:

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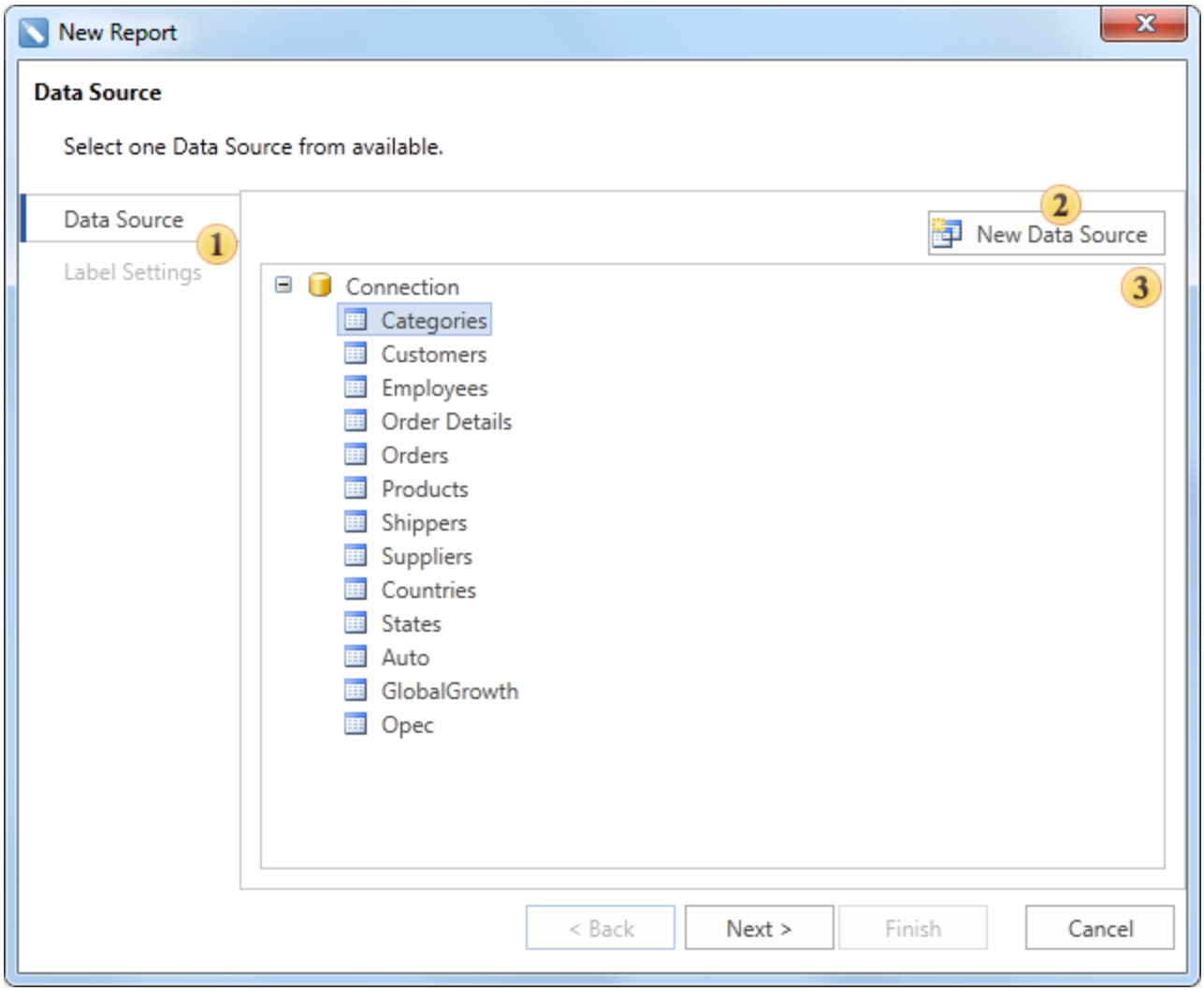


1 The **Description Panel**. Shows description for the current step.
2 The **Steps Panel** shows step of report creation.
3 The **Selection Parameters Panel** shows options, actions, settings available on this step.

A **Label Report** is created in two steps. The **Data Source** is defined on the first step, **Label Settings** are defined on the second step. The picture below shows the **Selection Parameters Panel** on the second step of the **Label Settings**.

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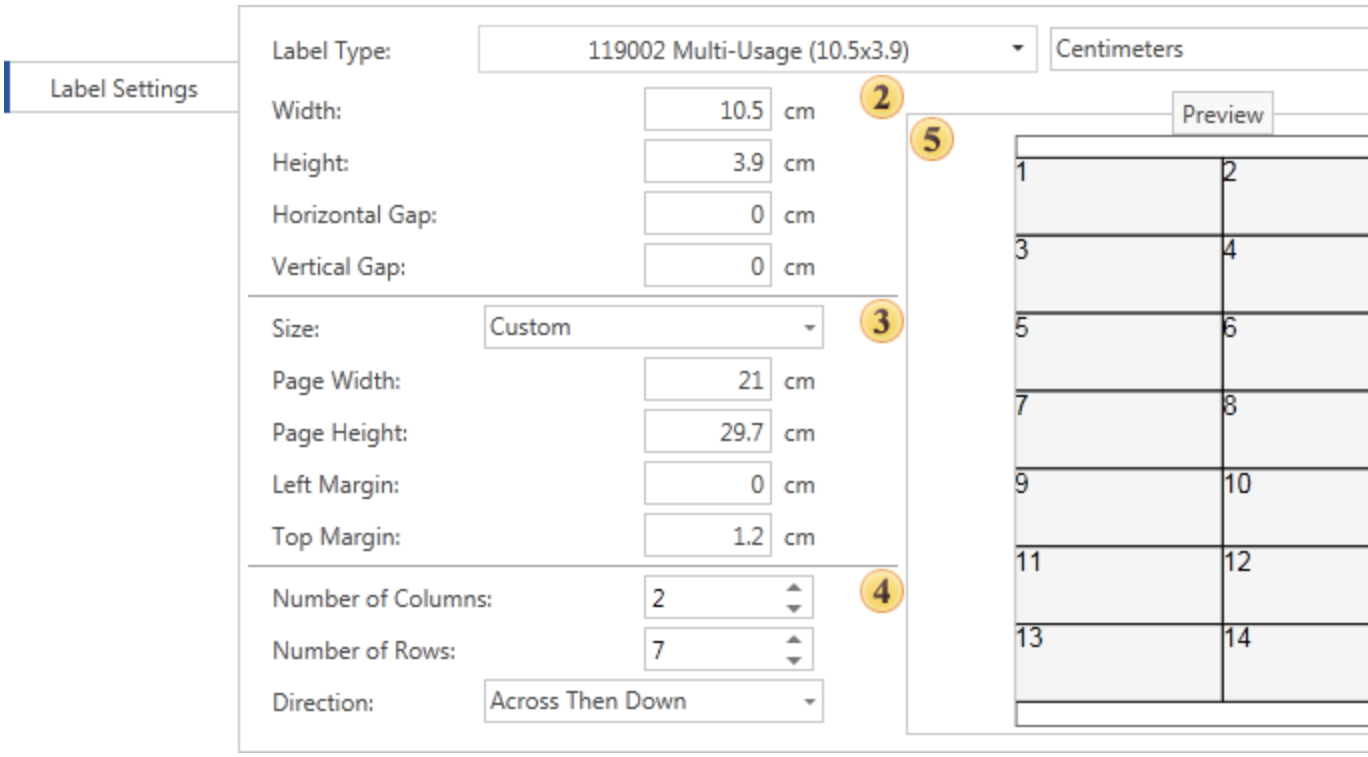


1 The **Type Panel** is used to select the **Label Type** and units.
2 The **Size Label Panel** is used to change the label size.
3 The **Size Pages Panel** is used to select the page size or manually set width and height and margins of a page.
4 The **Configuration Label Panel** is used to set a number of rows, columns and direction of labels.
5 The **Preview Panel** is used to preview how labels are placed on a page.

### 7.2.1.4 Wizard Chart

The **Chart** wizard is used to create reports with charts. The picture below shows a window of the **Chart** wizard.

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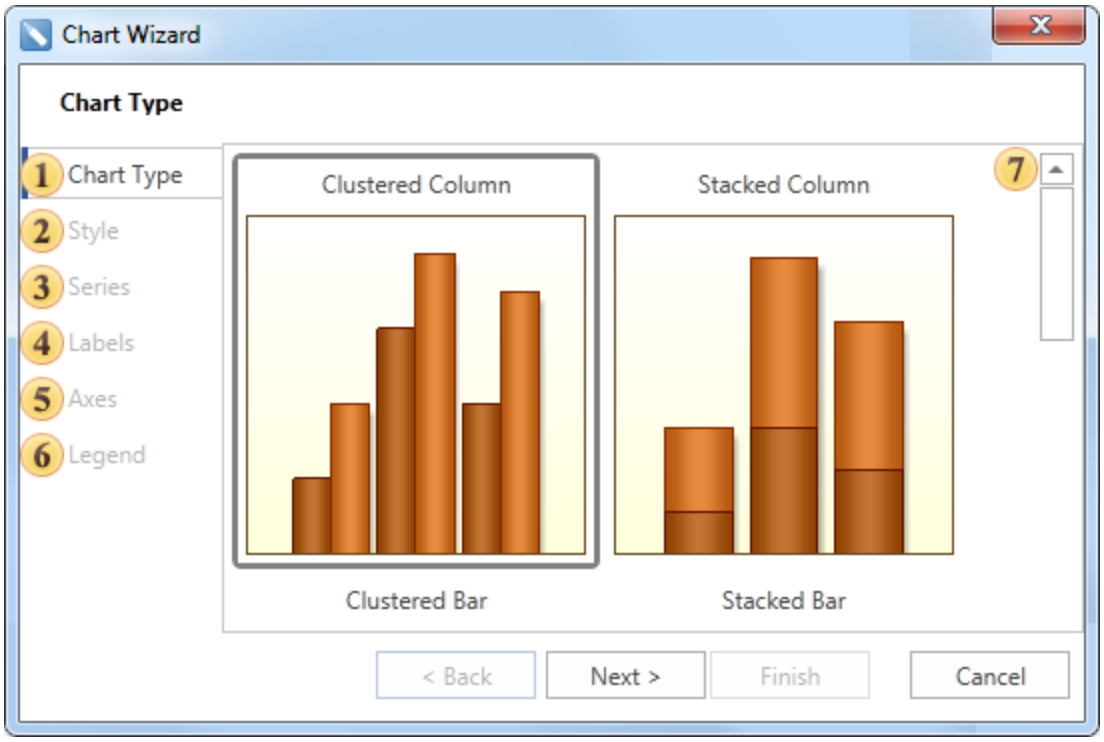


1 **Chart Type**. Select the chart type.
2 **Style**. Select the chart style from multiple templates.
3 **Series**. Add series using the series editor. Also, it is possible to specify the column of values and arguments for the data source.
4 **Labels**. The following parameters are defined on this step: series position, **Value Type** of series, **Text before/after** the series, and a rotation **Angle**.
5 **Axes**. This step is available only if selected chart type is in **Axes Area**. The following options are set on this step: axis **Title** and its **Alignment**, **Ticks** length and their **Visibility**, **Grid Lines** and its **Interlaced**, **Labels** and their **Visible** property. Also, a chart can be shown vertically or horizontally. The Reverse property for X or Y axis should be applied for this.
6 **Legend**. On this step legend parameters and charts such as **Title**, legend **Alignment** horizontally and vertically, **Direction** of rows in legend, **Visible** and **Size** of a marker, **Spacing**, **Visible** of the legend.
7 The **Description Panel**. Shows description for the current step.

#### 7.2.1.5 Wizard Cross-Tab

The **Cross-Tab** wizard is used to create reports with cross-tab. The picture below shows the window of the **Cross-Tab** wizard.

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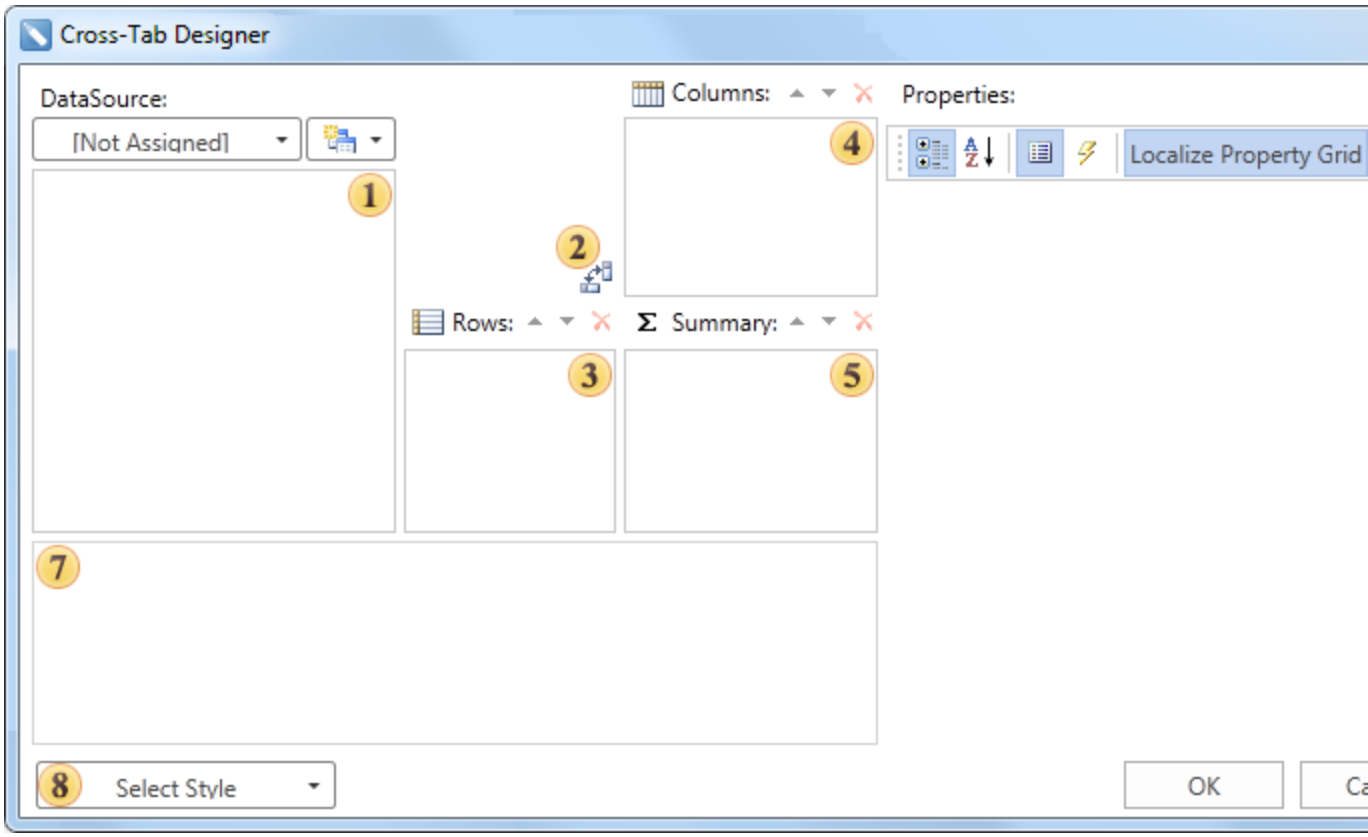


1 **Data Source Panel**. In the **Data Source** field it is necessary to select the data source. Then data source columns will be shown on the panel of the data source.
2 The **Swap Rows/Columns** button is used to change data between columns, which are placed on the **Rows** and **Columns** panels.
3 The **Rows** panel shows data source columns, which are rows of a cross table.
4 The **Columns** panels shows data source columns, which are columns of a cross table.
5 The **Summary** shows data source columns, which are the key column and row in the cross table. Key column and row generate summary cell.
6 The **Properties** panel shows a table of properties of selected column of the data source.
7 The **Preview Panel** is used to preview the template of a cross table.
8 The **Select Style** button is used to select style of the cross table appearance.

## 7.3 Panels

In this section the basic panels of the designer, such as: **Dictionary**, **Messages**, **Report Tree**, **Properties** will be reviewed. These panels contain different properties, functions and commands to control various components of a report, information fields arranged for notification and hints for a user. These panels can be shown or hidden. In the **Ribbon** UI showing or hiding panels can be done using the **Panels** button on the **View** tab. In the **Standard** UI showing or hiding panels can be done in the**View** tab of the **Main Menu**.

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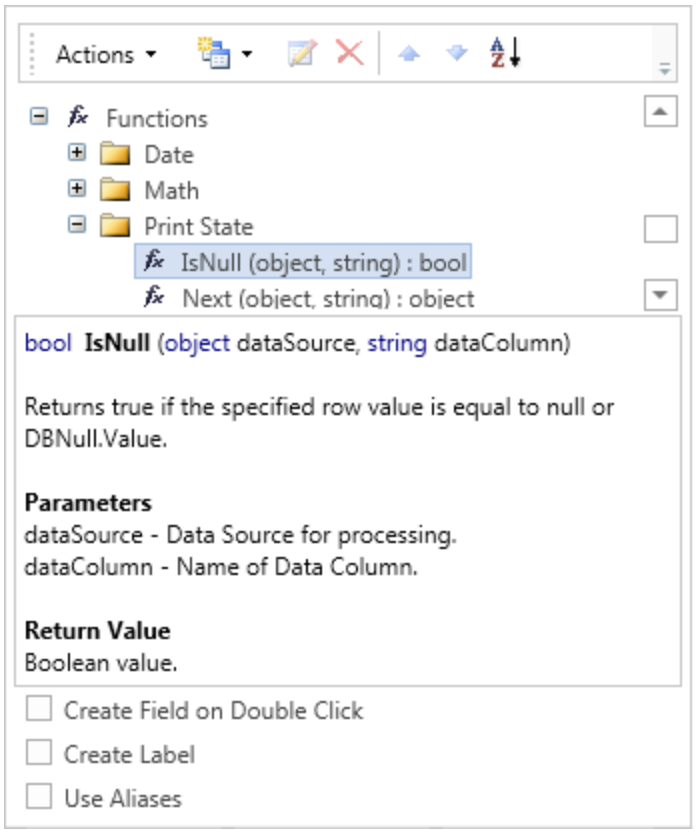
### 7.3.1 Dictionary

The Dictionary panel shows the connected data available data sources, system variables and functions. Besides, a connection and connecting new data sources can be done in the Dictionary. The picture below shows an example of the Dictionary:




The Dictionary panel includes: **Dictionary ToolBar**, **Data Tree**, **Description Panel**, **Dictionary Setting Panel**.

The **Dictionary ToolBar** is a set of tools and commands to work with the Dictionary. The picture below shows the Dictionary ToolBar:

1 The **Actions** menu is a set of commands to work with vocabulary such as: creating, opening, saving a dictionary, adding, importing and exporting a dictionary to an XML schema, the synchronization of data presented in the dictionary with the data registered in a data store.
2 The **New Item** menu contains commands for creating new elements: new connection, new data source, new connection, new variable, business objects.
3 The **Edit** button is used to edit created elements. Pressing the button runs the editor of the element.
4 The **Delete** button deletes created elements.
5 The **Up** and **Down** buttons move the selected item in the hierarchy of a dictionary within a single

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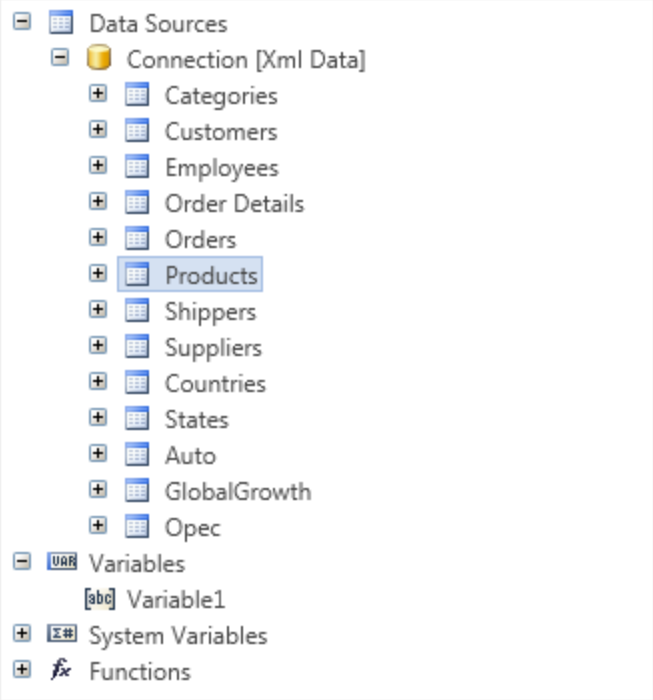
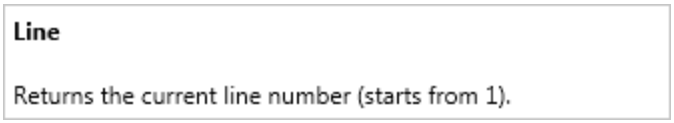
level of a tree.

6 The **Sort Items** menu provides the opportunity to choose one of two directions of Sorting: Ascending from A to Z, Descending from Z to A. And also to enable or disable the Auto Sort mode.

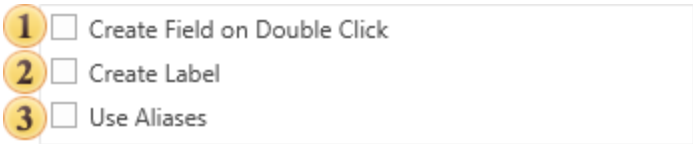
The **Data Tree** represents a list of all data of a dictionary, which are displayed in a tree. The picture below shows an example of the Data Tree:




The **Description Panel** displays a short description of the selected system variable or function. The picture below shows an example of the Description Panel with the description of the Line system variable:




The **Dictionary Setting Panel** is a panel with three options to optimize the work with the dictionary and its contents.




1 The **Create Field on Double Click** option provides the ability to create a field on the DataBand. Fields are created on the band, that has selected data source by which the fields the double-click in the dictionary is done.

2 The **Create Label** option attaches the column data header when it is dragged on the report

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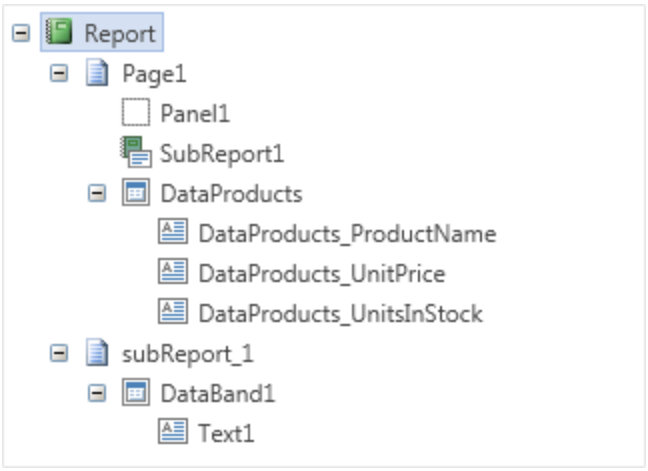
template.

3 The **Use Aliases** option provides an opportunity to show Aliases of components instead of the Name in the report template.

### 7.3.2 Report Tree

The **Report Tree** panel shows the hierarchy of the report, i.e. represents all the components of the report in the form of a tree. In addition, if an event handler is added to the component, it will also be displayed in the hierarchy of the report. The picture below shows an example of the **Report Tree** panel:




As can be seen on the picture above, hierarchy is represented on the principle of "nesting", and an event handler is added for the **GetValue** event of the **Text10** component. The **Report Tree** panel provides the ability to visually identify the submission of a "component to a component".

### 7.3.3 Properties

The **Properties** panel shows all the properties of the selected component, and also its events. The picture below shows the **Properties** panel, displaying the properties of a component (left) and an event of a component (right):

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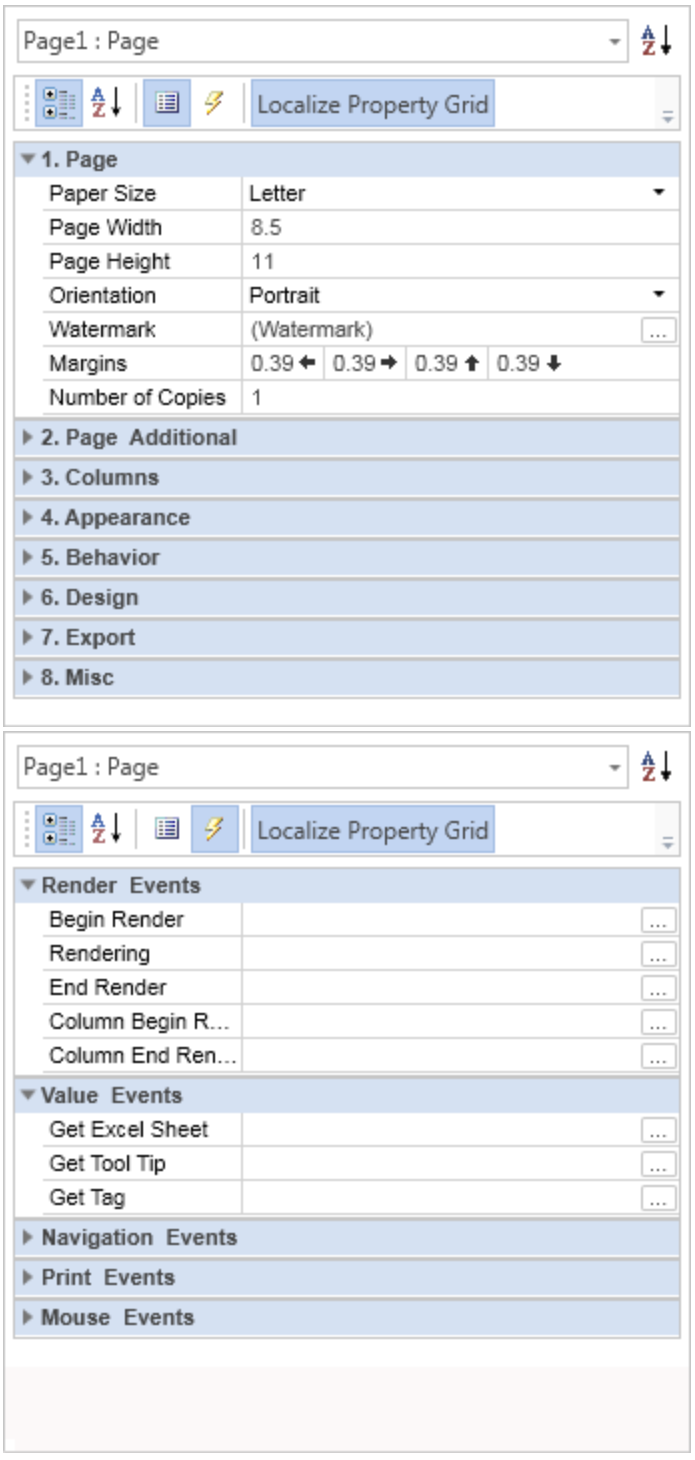


The **Properties** panel includes: **Drop-Down List of Components**, **Properties ToolBar**, **Properties** or **Events Table**, **Description Panel**.

The **Drop-Down List of Components** displays a list of all the components of a report. The picture below shows an example of the **Drop-Down List of Components**:

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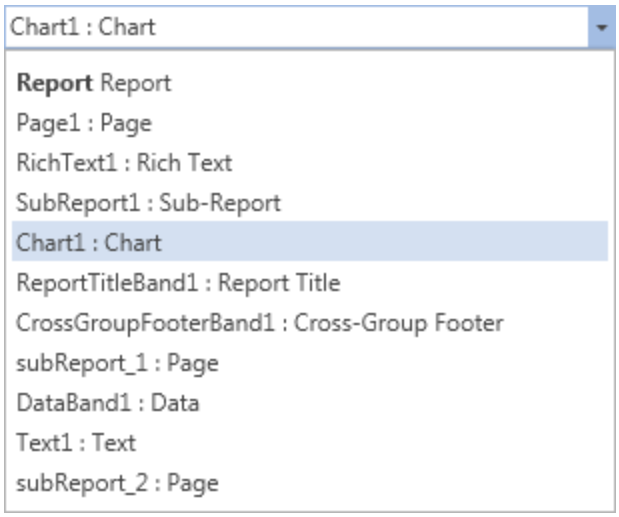
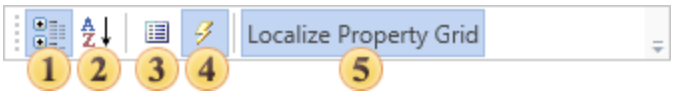



As can be seen on the picture above, the list is presented in two columns. The first column displays the **Name** of a component and the second one shows its type. For example, the string "**Text7: Text", "Text7**" is a **Name**, "**Text**" this is a type. If to select a component in this list then, on the Properties panel, properties and events of the selected component will be shown.

The **Properties ToolBar** is designed to control the **Properties** panel. The picture below shows the **Properties ToolBar**:




1 The **Categorized** sorting button is used to show a list of properties or events sorted by category.
2 The **Alphabetical** sorting button is used to show a list of properties or events are sorted alphabetically from A to Z.
3 The button for enabling the **Properties Tab**.
4 The button for enabling the **Events Tab**.
5 The button for changing the property panel localization. If it is enabled then the properties panel will have a default localization.

The **Properties Tab** or **Events** are a table with two columns. The first column shows names of properties or events. The second column shows values of these properties or events. The number of rows depends on the number of properties or events, because one property or event takes a single row. The picture below presents a table of properties (left) and a table of event (right):

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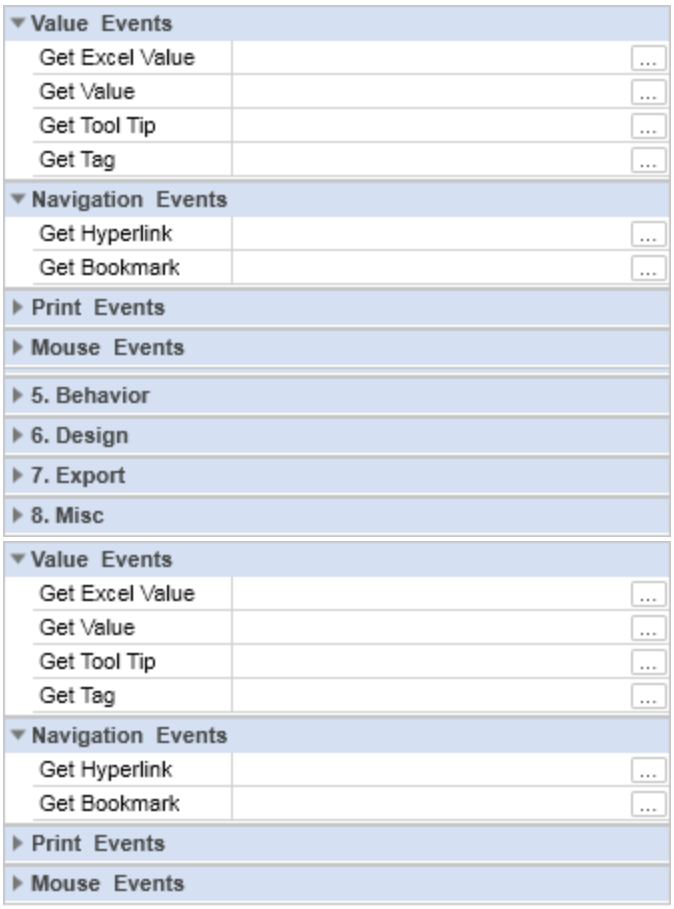


In the context menu of the panel Properties there is a command Localize Property Grid. If this option is enabled (checked), the translation of the panel Properties will be done. If this command is disabled (not checked), the names of the properties, events, values and description of the properties will stay in default English.

## 7.4 Keyboard Shortcuts

The reports designer supports many keyboard shortcuts. Using them can speed up the effectiveness of work in creating reports. Some keyboard shortcuts are available both in the Ribbon mode and in the Standard mode. Some of them are available only in the Standard mode (in the Ribbon mode they are duplicated by context commands).

| Buttons | Description |
|---|---|
| **Ctrl+B** | Makes letters **bold** for the selected text component |

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| | |
|---|---|
| **Ctrl+I** | Makes letters *Italic* for the selected text component |
| **Ctrl+U** | Makes letters Underlined for the selected text component |
| **Ctrl+"+"** | Increase the font size for the selected component |
| **Ctrl+"-"** | Decrease the font size for the selected component |
| **Ctrl+L** | Align selection or paragraph to the left |
| **Ctrl+E** | Align selection or paragraph to the centre |
| **Ctrl+R** | Align selection or paragraph to the right |
| **Ctrl+J** | Justify selection |
| **Ctrl+Shift+D** | Activate the **"Dictionary"** panel |
| **Ctrl+Shift+M** | Activate the **"Messages"** panel |
| **Ctrl+Shift+L** | Activate the **"Report Tree"** panel |
| **F4**<br>**Shift+Enter** | Activate the **"Properties"** panel |
| **Ctrl+C**<br>**Ctrl+Insert** | Copy the selected text or object |
| **Delete**<br>**Ctrl+Delete** | Delete the selected component |
| **Ctrl+V**<br>**Shift+Insert** | Paste the text or object from the Clipboard |
| **Ctrl+X**<br>**Shift+Delete** | Cut the selected text or object |
| **Ctrl+A** | Select All |
| **Ctrl+Z** | Undo |
| **Ctrl+Y** | Redo |
| **Ctrl+F2** | Show **"Data Store"** |
| **Ctrl+F4** | Show **"Page Manager"** |
| **Ctrl+F5** | Show **"Services Configurator"** |
| **Ctrl+N** | Create a new report |
| **Ctrl+Shift+N** | Add a page to the report |
| **Ctrl+Shift+F** | Add a form to the report |
| **Ctrl+O** | Load a report from the file |
| **Ctrl+Shift+O** | Load a page from the file |
| **Ctrl+S** | Save a report |

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| | |
|---|---|
| **Ctrl+F12** | Save a report as... |
| **Ctrl+Tab** | Switching pages in the report template |
| **F5** | Report preview |
| **Ctrl+Enter** | Call the designer be default for the elected component |
| **Enter** | Call the text editor for the selected component |
| **F1** | Select the **"Select"** tool |
| **F2** | Select the **"Hand"** tool |
| **F3** | Select the **"Text Editor"** tool |
| **F6** | Select the **"Copy Style"** tool |
| **Cursor keys** | Move selection |
| **Shift+Cursor keys** | Resize selected component (one step = grid size) |
| **Shift+Alt+Cursor keys** | Resize selected component (one step = half grid size) |
| **Ctrl+Cursor keys** | Move selected component (one step = grid size) |
| **Ctrl+Alt+Cursor keys** | Move selected component (one step = half grid size) |
| **Ctrl+Drag mouse** | Copy selected components |
| **Alt+Drag mouse** | Ignore "Align to Grid" when moving and resizing |

## 7.5 Report Checker

In order to check the report for errors you should use the Report Checker. The Report Checker will analyze the report, resulting in an error message, comments, or inaccuracies found in this report. The picture below shows the Report Checker:

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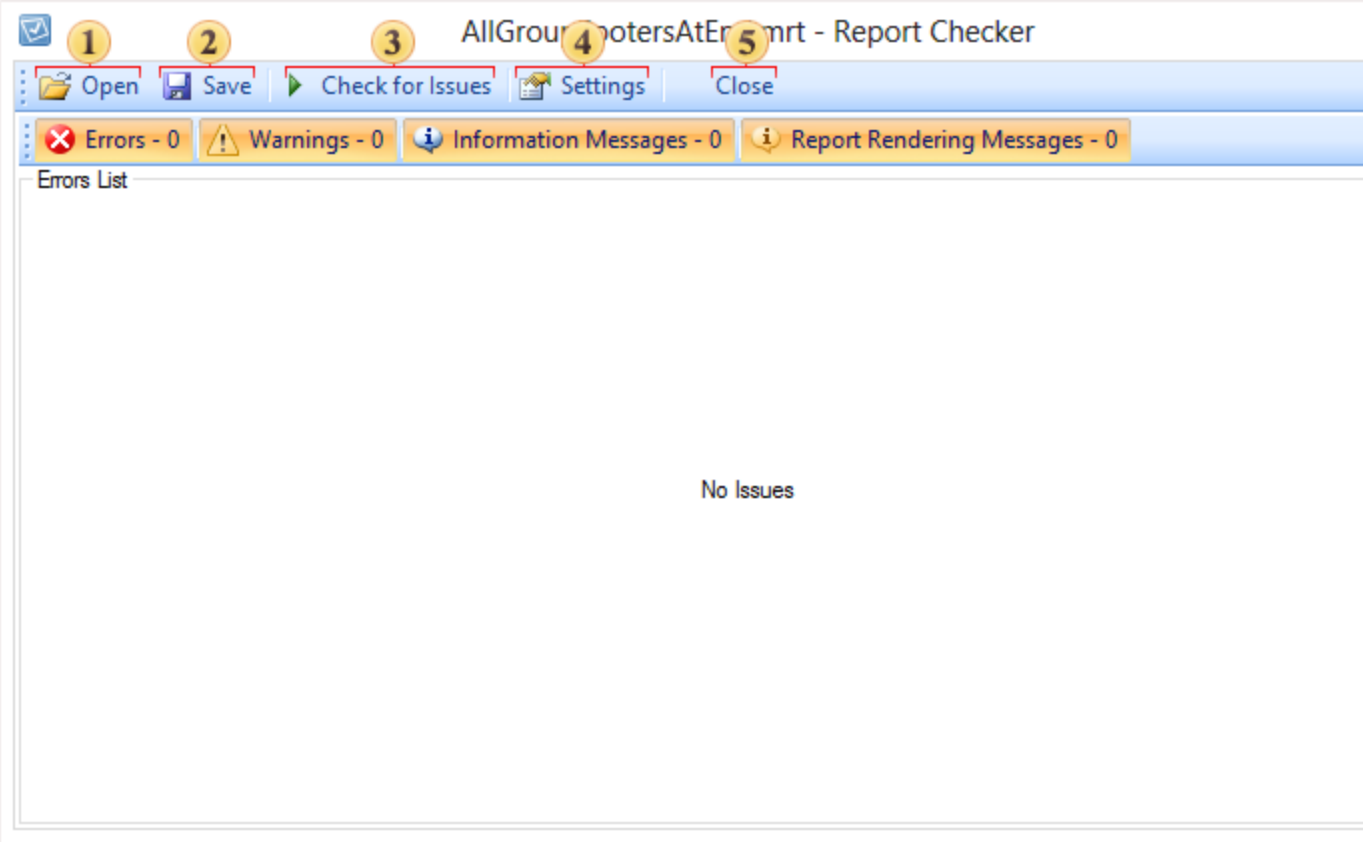


1 The **Open** button. Clicking this button, the user will see a dialog box to select a previously saved report and loading it to the Report Checker.
2 The **Save** button saves changes in the report, that was opened in the Report Checker.
3 The **Check for Issues** button starts the process of checking the report.
4 The **Settings** button opens the window of settings of the Report Checker. The picture below shows the Settings window:

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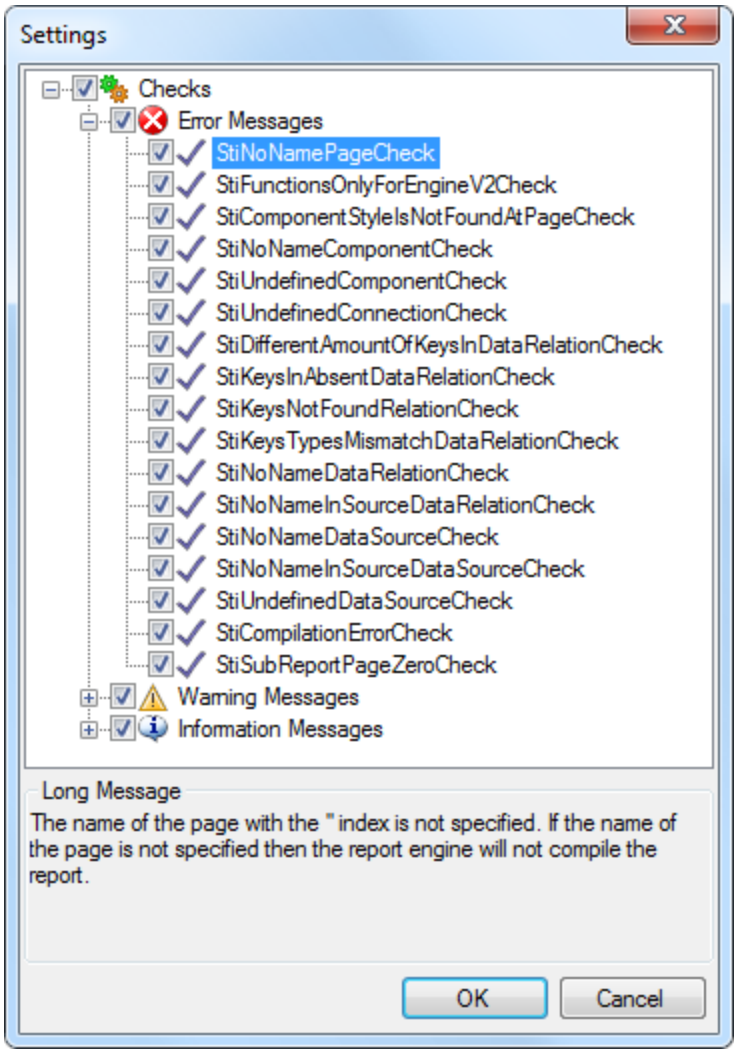


In this window, you can mark messages and warnings you want notifications to be displayed.

5 The **Close** button closes the window of the Report Checker.

6 The panel for showing messages.

7 The panel for showing descriptions of **Errors**, **Warnings**, **Information**.

## 7.6 Globalization Editor

The report designer has a **Globalization Editor**. This editor allows you to localize a report into several languages. If the button Auto Localize Report on Run is enabled, then when rendering a report, the reporting tool will check the culture of the installed operating system. After checking the culture in the installed OS, the reporting tool will check the availability of the same culture in the list of cultures available in the report. And, if the matching culture is found, there will be a substitution of all expressions in the report. As a result, the report will be localized into the culture of your operating system, according to certain parameters in the Globalization Editor. If the culture of the operating system is not present in the list of report cultures, then the report will not be localized when rendering. If the button Auto Localize Report on Run is not disabled then automatic localization will not be

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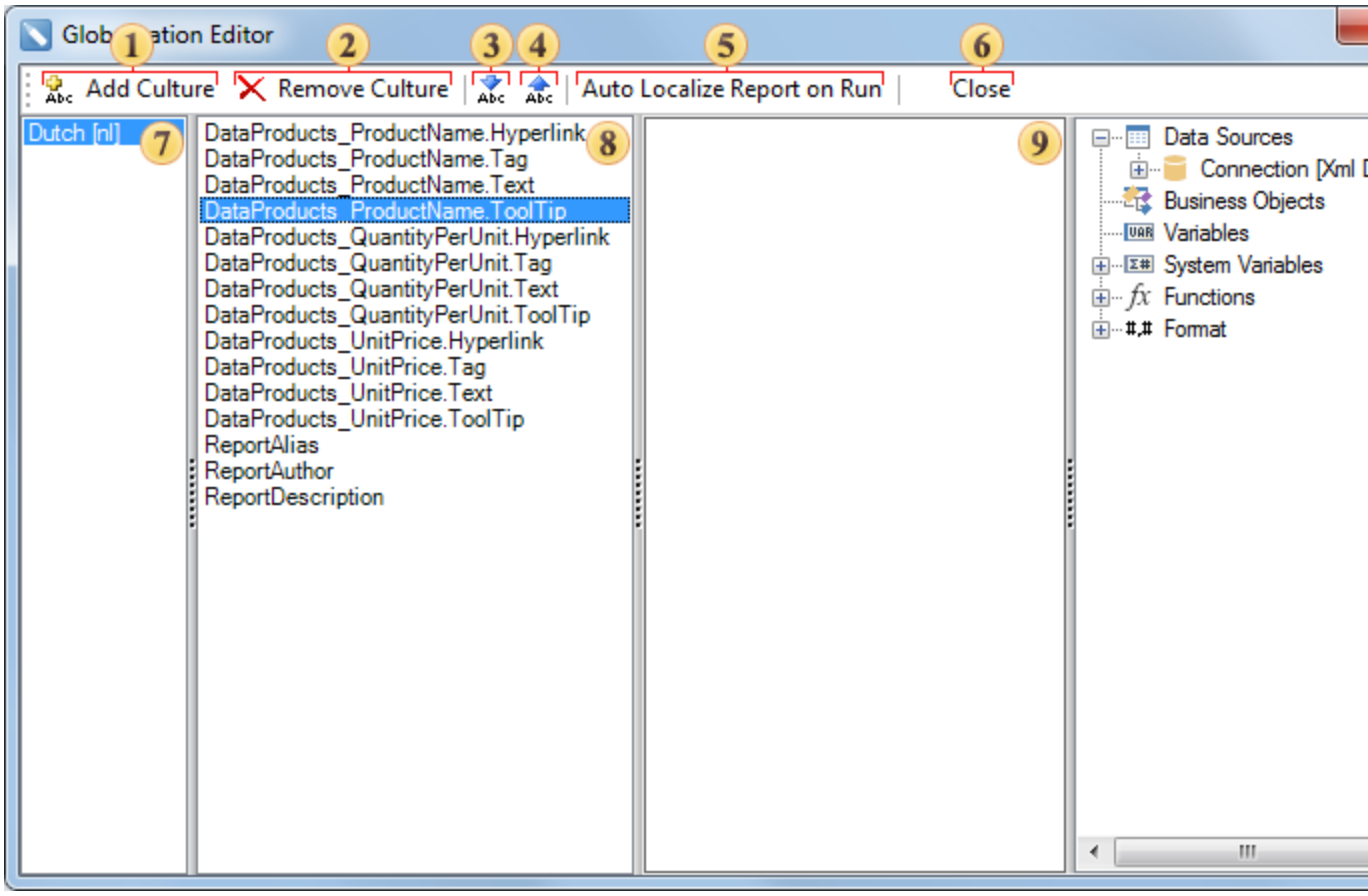
applied. The picture below shows a dialog box of the Globalization Editor:




1 The button **Add Culture** invokes the list of cultures.
2 The button **Remove Culture** removes the selected culture.
3 The button **Get Culture Settings from Report** overwrites values from the report into the culture.
4 The button **Set Culture Setting to Report** sets the culture settings in the report what makes them the default settings.
5 The button **Auto Localize Report on Run**. It enables/disables automatic localization at the start of rendering a report. If the button is enabled, the automatic localization will be performed. If not, it will not be localized automatically.
6 The button **Close** closes the dialog.
7 A list of cultures used in this report.
8 A list of components for localization.
9 Localization of the selected component.
10 A list of system variables, functions, formats the report designer.

## 7.7 Context Menu

**Context Menu** is a menu in a graphical user interface that appears upon user interaction (a right mouse click). A context menu offers a set of choices that are available in the current state of the component. The picture below shows a context menu of the text component:

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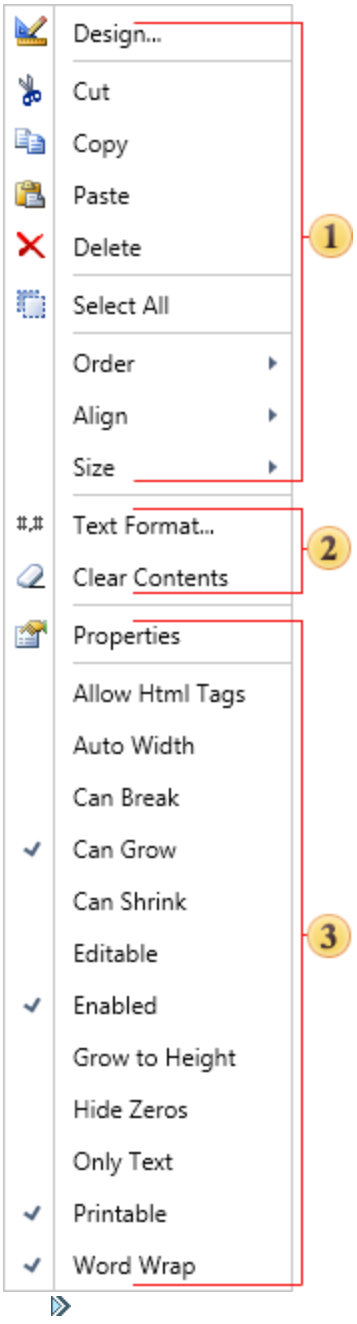


The context menu consists of three groups:

1 General commands. These are static commands, which can be applied to any component of the designer:

- The **Design...** command invokes the editor of a selected component. For example, if it is a text component then the **Text Editor** will be called.
- The **Cut** command cuts the selected component to the clipboard.
- The **Copy** command copies the selected component to the clipboard.
- The **Paste** command pastes from the copied or cut component from the clipboard.
- The **Delete** command deletes the selected component.

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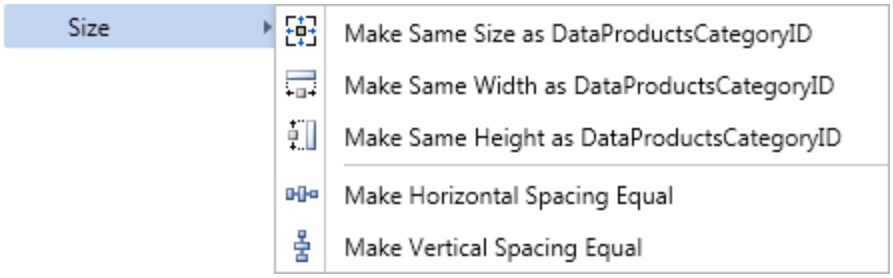
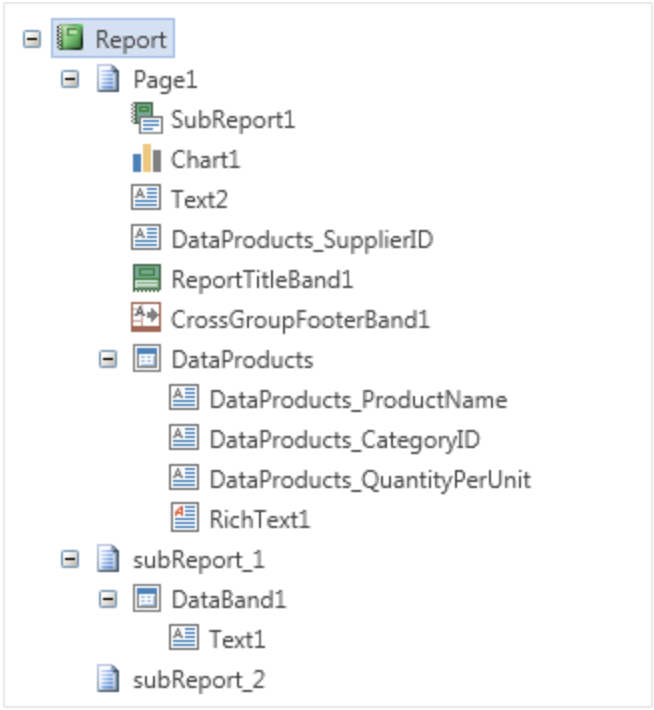
When selecting two or more components, the **Size** command appears in the context menu. This command contains submenu in what it is possible to define the size parameters for all selected components.


Size
Make Same Size as DataProductsCategoryID
Make Same Width as DataProductsCategoryID
Make Same Height as DataProductsCategoryID
Make Horizontal Spacing Equal
Make Vertical Spacing Equal

If you select all the components on the page, i.e. choose the **Select all** command in the context menu, or press the **Ctrl+A** key combination, then the prototype of the size for all components will be the size of the component that is placed on a higher level and higher than other components in the report tree in that level. It is possible to see the report tree on the **Report Tree** panel. The picture below shows an example of a report tree.




As seen on the picture above, the **PageHeaderBand** is located higher, so, in this case, its size is a sample of sizes for the remaining components. If the **PageHeaderBand** is absent, then, as a sample of sizes, the **PageFooterBand** will be taken. If the **PageFooterBand** is absent, then, as a sample of sizes, the **Text1** will be taken.

The **Select All** command selects all components on the current page.
The **Order** command invokes the submenu, in what it is possible to define the position of the selected component. The picture below shows the **Order** submenu:

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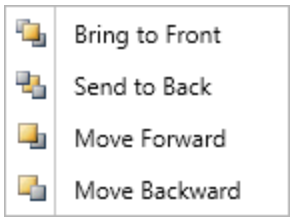
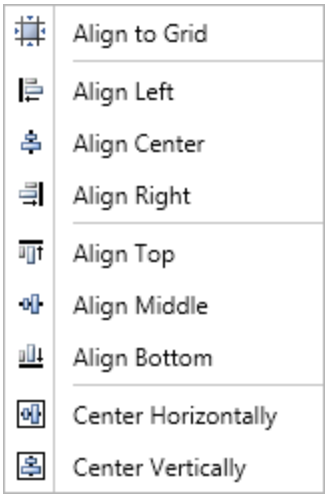



The **Align** command invokes the submenu, in what it is possible to select the **Align to Grid** command. The picture below shows the **Align** submenu:

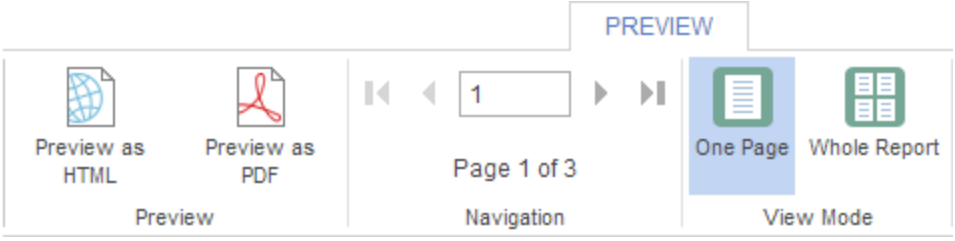



2 Commands which are specific for the component.
3 It is possible to enable/disable different properties, without closing the context menu of the selected component.

## 7.8 Previewing Reports

Report Designer allows previewing a report before printing, exporting, sending via Email or any other action, in order to identify possible errors. Clicking the **Preview** or **HTML Preview** tabs it is possible to preview a report. You can also preview the report in the separate window by using the F5 shortcut key or selecting **Preview** from the main menu.

**Notice.** In the report designers for **WinRT** and **Mobile**, switching to the preview windows can be done by selecting the tab **Preview**.

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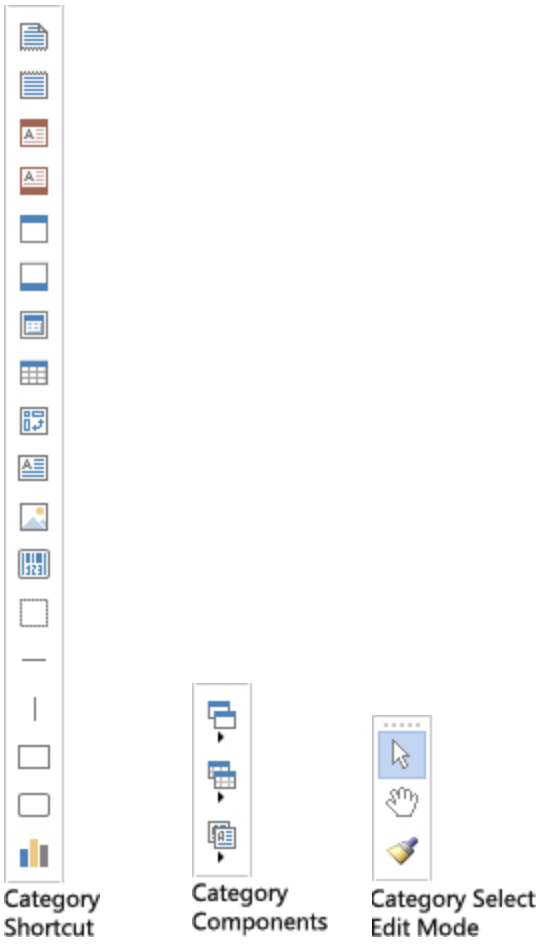
# 7.9 Toolbox

The **ToolBox** panel contains the main tools for creating reports. All items on this panel are divided into the following categories: **Select Edit Mode Category**, **Components Category**, **Shortcut Category**, **Shortcut Category Settings**. The picture below shows the **ToolBox**:




The Toolbox is located on the left side in the designer window and looks like a vertical panel. If necessary, the Toolbox bar can be shown or hidden. In Ribbon UI hiding or showing the **Toolbox** can be done by pressing the **Toolbox** button, which is located in the **View** tab. If the button is pressed, the **Toolbox** is shown. In Standard UI hiding or showing the **Toolbox** can be done by right-clicking and calling the context menu of the Toolbox or the Main Menu.

**Notice**. The Toolbox is not always displayed on the left side. In some report designers, such as WinRT and Mobile, the development tools are located on the tab Insert.

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### 7.9.1 Shortcut Panel

The shortcut category is one of the basic panels of the **Toolbox** and is designed for quick selection of the component when creating a report template. There are some ways to add components on a page:

- Drag and Drop. To do this, put the cursor on the component, left-click and drag the component on the page of a report template.
- Select the required component, and then draw it on a report page.

To draw several components of one type, hold down the **Shift** key, select the components from the shortcut category. Once the component is selected, the **Shift** key can be released. Now you can draw components unlimited number of times. The picture below shows an example of the shortcut category:

Category Shortcut

In addition, the **Toolbox** has the **Setup Toolbox** button:

Setting Categories Shortcut

This button invokes the **Setup Toolbox** window, which is necessary to check the elements that will appear on the toolbox panel in the shortcut category. The picture shows an example of the **Setup Toolbox** window:

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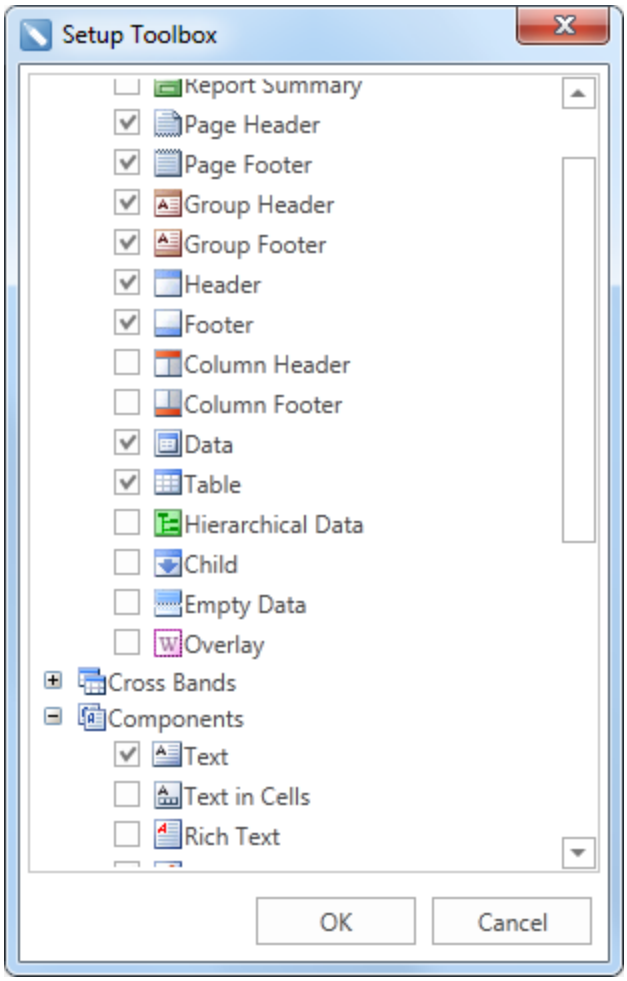


Components which are marked with the "check" in the **Setup Toolbox** window will appear on tools in the shortcut category. Accordingly, the components that are not marked will not be displayed.

## 7.10 Wizard Components Placement

When you drag components from the dictionary, toolbar, or any other container into bands of a report template, and margins of a component are beyond the margins of a band, then the **Components Placement Wizard** will be invoked. With this wizard you can define the parameters of the location of the component in the band. The picture below shows the structure of the **Components Placement Wizard**:

1 Move a component to the right side of a free space, stretching the component by the height of the free space.

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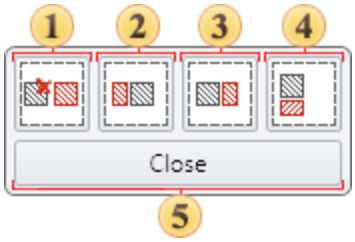
2 Move a component to the left side of a free space, stretching the component by the height of the free space.
3 Close the **Components Placement Wizard**.

## 7.11 Wizard Drag and Drop

When dragging a text component with an expression from the Dictionary and overlapping on another text component, the **Drag and Drop Wizard** will be invoked. Using this wizard it is possible to choose the way of merging the contents of the components. The picture below show how the **Drag and Drop Wizard** looks like:




1 Substitute an expression in the text component which is placed in the report template, for an expression of the text component which is being dragged;
2 Place an expression from the dragged component before an expression of the text component which is placed in the report template;
3 Place an expression from the dragged component after an expression of the text component which is placed in the report template;
4 Place an expression from the dragged component one row below an expression of the text component which is placed in the report template;
5 Close the wizard.

## 7.12 Google Docs Service

In Stimulsoft Reports products there is an opportunity to store reports in clouds. This possibility is realized via the **Google Docs** service. In order to use this service, you must have a Google account. Access to the **Google Docs** service from the report designer can be done by selecting one of the main menu items **Save Report As to Google Docs...**, that allows saving report on the **Google** servers, and **Open Report from Google Docs...**, with which you can open a previously saved on Google servers reports. The picture below shows two dialog forms **Save File** and **Open File**, by which, access to the files from **Google Docs** store from the designer is performed:

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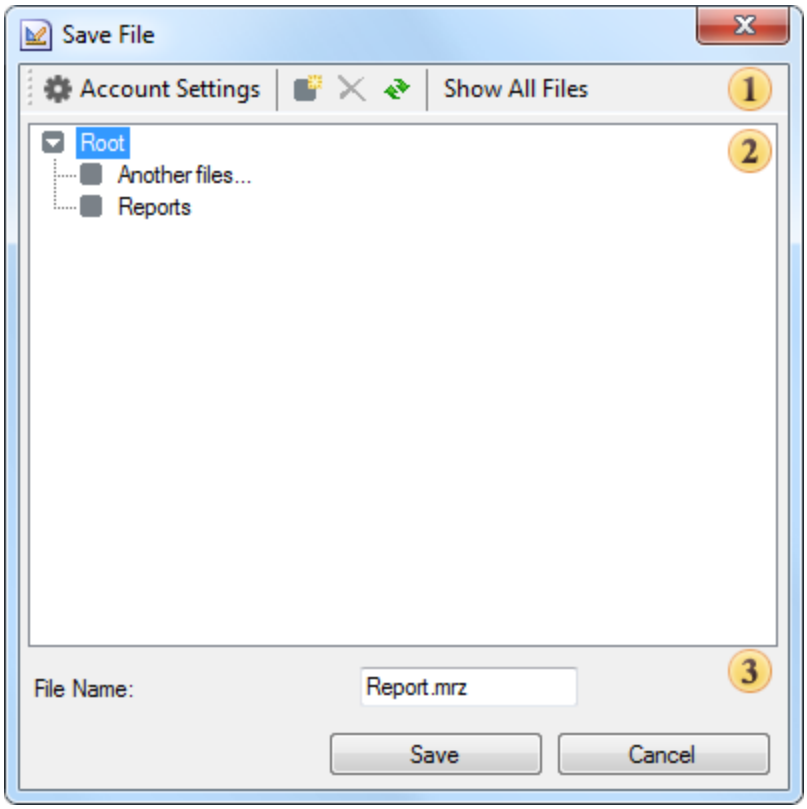


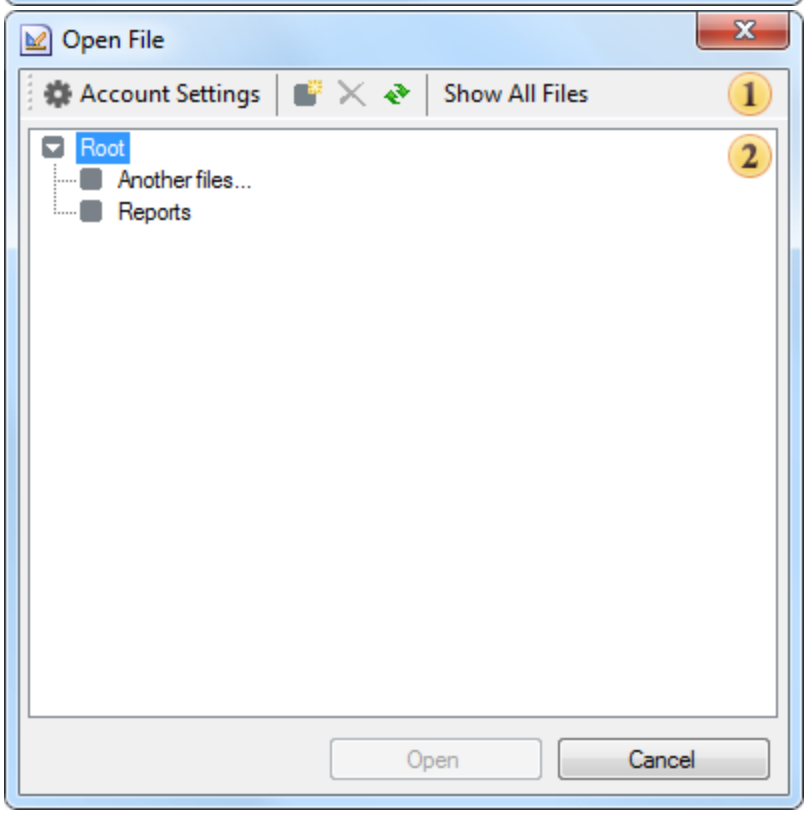


1 **Control Panel**. Contains the basic controls to work with the information in the account of the

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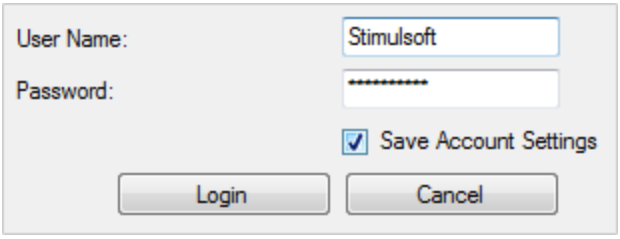
**Google Docs** service.
2 **Files Panel**. This panel displays collections of files as a tree that are stored in an online store.
3 **File Name** field.Used to insert the report name under which it will be saved.

## 7.12.1 Control Panel

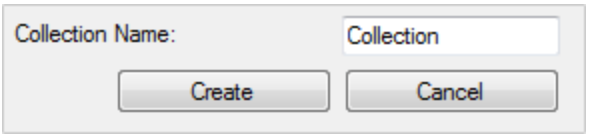
The panel contains a set of controls for working with files stored in the **Google Docs** service. Consider these controls in more detail. The picture below shows the control panel:

1 The **Account Settings** button. Shows/hides the bar used to specify the username and password to the Google account. Also on this panel you can enable/disable saving your account settings by checking/unchecking the flag **Save Account Settings**. The picture below shows the account panel:




Once **User name** and **Password** fields are filled, click **Login** to connect to the online store. Clicking the **Cancel** button the panel will be closed.

2 After pressing the **Create New Collection** button a panel will be displayed. This panel is used to indicate the name of the new collection in the field **Collection Name**. (See the picture below) Then click **Create**. A new collection, which can act as a folder for saving files is created.




Clicking Cancel, the panel will be closed.

3 The **Delete** button. Deletes the selected file or collection.
4 The **Refresh** button. Re-sends the request to the server and receives an updated list of files.
5 The **Show All Files** button. Enables/disables displaying of files. If the button is not clicked, only files with extension ***.mrz** are shown. If the button is clicked (the mode is enabled), all the files that are in the online store are displayed.

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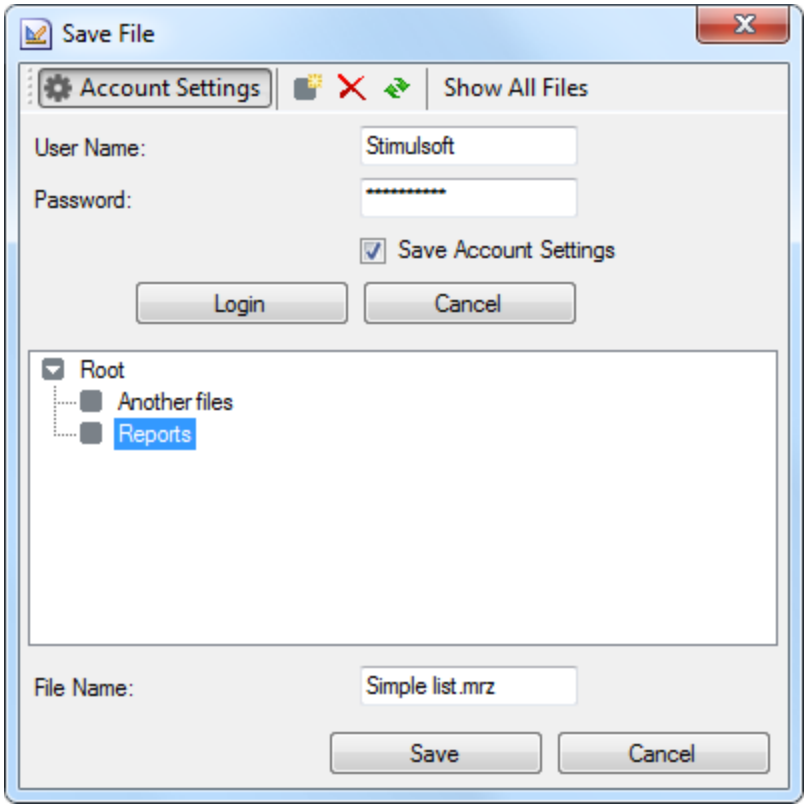
## 7.12.2 Saving Reports

It is possible to save report templates to the online store. To save a report template, open in the report designer and select the **Save Report as a Google Docs...** item in the main menu. After that, the **Save File** dialog will be opened. If the **Save account settings** is checked and user name and password fields are correct, then the report generator automatically connects to the **Google Docs** service, and gets a list of files and collections that are stored on the server. If the user name and password is not specified or specified incorrectly, or the **Save Account Settings** flag is not checked, then enter a user name and password and click **Login**. After that, the report generator connects to the **Google Docs** service and gets a list of files and collections that are stored on the server. The picture below shows the **Save File** dialog:




Select a collection (or create a new one) to save a report template in it. Put the name under which the file should be saved to **Google Docs**. Click the **Save** button. After that, the report generator will create a temporary file, archive it and upload to the specified location in the **Google** server. It should be noted that if a file name is specified without the **mrz** extension, enable showing all files (the **Show All Files** mode), otherwise it will not appear in the list of stored files.

## 7.12.3 Opening Reports

If the **Save account settings** is checked and user name and password fields are correct, then the report generator automatically connects to the **Google Docs** service, and gets a list of files and collections that are stored on the server. If the user name and password is not specified or specified

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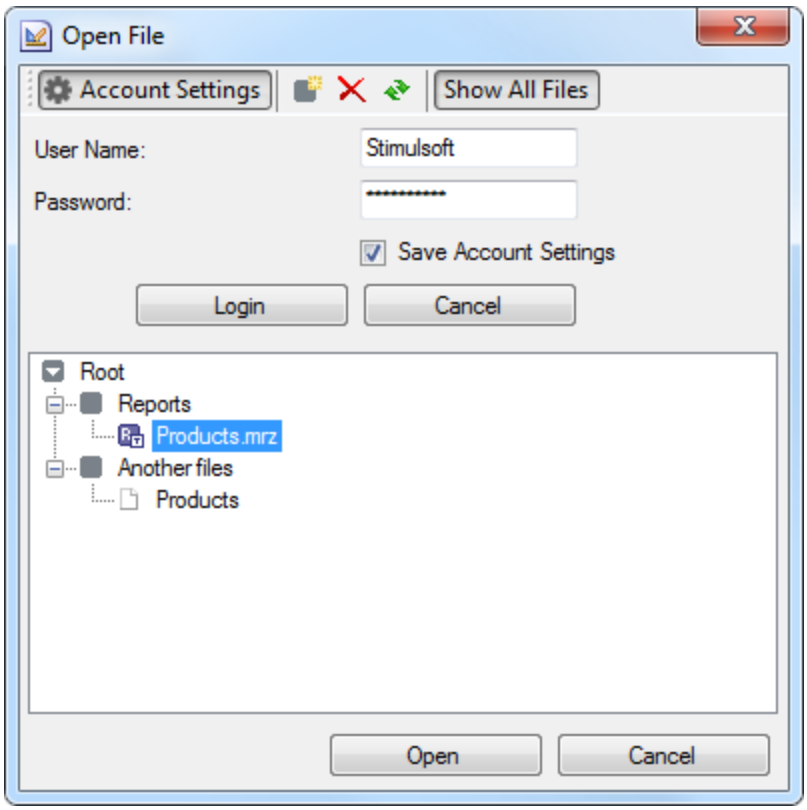
incorrectly, or the **Save Account Settings** flag is not checked, then enter a user name and password and click **Login**. After that, the report generator connects to the **Google Docs** service and gets a list of files and collections that are stored on the server. The picture below shows the **Open File** dialog:




It should be noted that if a file name is specified without the **mrz** extension, enable showing all files (the **Show All Files** mode), otherwise it will not appear in the list of stored files.

# 8 Viewing Reports

## 8.1 Report Viewer Structure

On the picture below you may find the basic elements of the report viewer.

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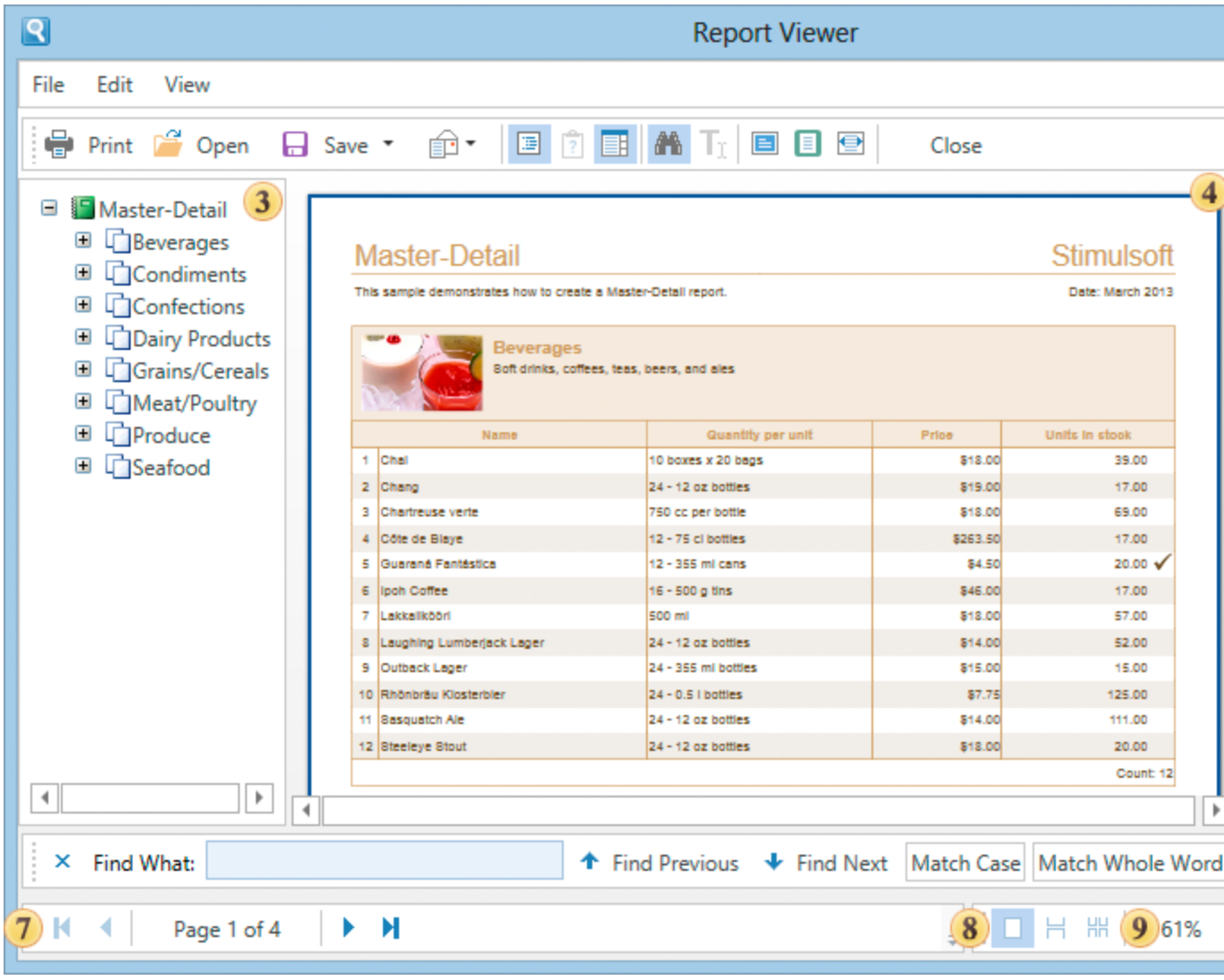


1 In this panel contains menus which have the basic control commands of the report viewer.
2 The basic commands to control the report are represented on the toolbar.
3 The tree of bookmarks of the output report. Using these bookmarks it is possible to jump by structure elements of a report.
4 The area where the report is shown.
5 The report thumbnails panel. Decreased copies of report pages are shown on this panel. The panel is used to quickly navigate throughout a report.
6 Find Panel.
7 The toolbar to scroll up or down in reports pages.
8 The toolbar to select the mode of report showing.
9 The toolbar to zoom reports.

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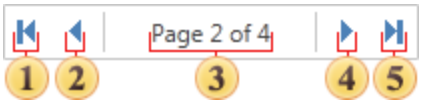
## 8.2 Basic Toolbar of Report Viewer

The main toolbar locates commands to control the report. Below is the structure of the toolbar with the description of each command:

1 Print a report. After activation of this command the printing dialog with parameters of printing will be displayed.
2 Open previously saved report. Any rendered report can be saved to .mdc or .mdz format for further preview.
3 Save the rendered report to other file formats.
4 Send the render report via Email. The report will be converted to one of the file formats.
5 Show/hide the tree of bookmarks. If there are no bookmarks in the rendered report then the viewer will automatically hide the tree of bookmarks. If there are bookmarks in a report, then the viewer will automatically show the tree of bookmarks.
6 Opens the dialog for changing basic parameters of the rendered report.
7 Show/hide the reports thumbnails.
8 Enable the search panel.
9 Open the reports designer and show the current page for editing.
10 Run the full screen mode of report showing.
11 Change zoom of the report to display only one full page. More than one page by the width can be output.
12 Change zoom of the report to fit the page width to the screen width.
13 Closes report viewer.

## 8.3 Page Navigation

On the picture below the toolbar that is used for report navigation is shown.




1 Set the first page of a report as the current page.
2 Set the previous page of a report as the current one.
3 Show the number of the current page and the number of pages in a report. If click on it then it is possible to indicate the number of a page that should be the current.

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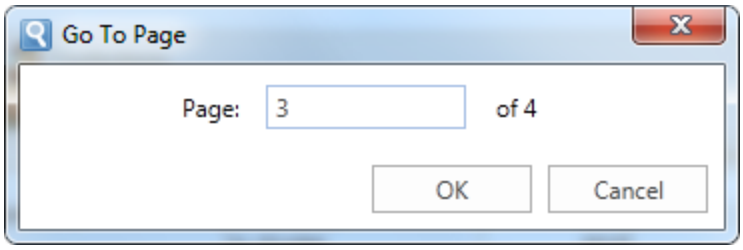


4 Set the next page of a report as the current one.
5 Set the last page of a report as the current page.

## 8.4 Displaying Mode

The viewer for WinForms supports three modes of viewing pages:

- **Single Page**
- **Continuous**
- **Multiple Pages**

Three buttons are used to control the page view mode. They are placed at the bottom of the viewer in the right corner.

Each mode has its own advantages.

**Single page.** In this mode the current page of a report is shown in the window of the viewer. The picture below shows how this mode works.

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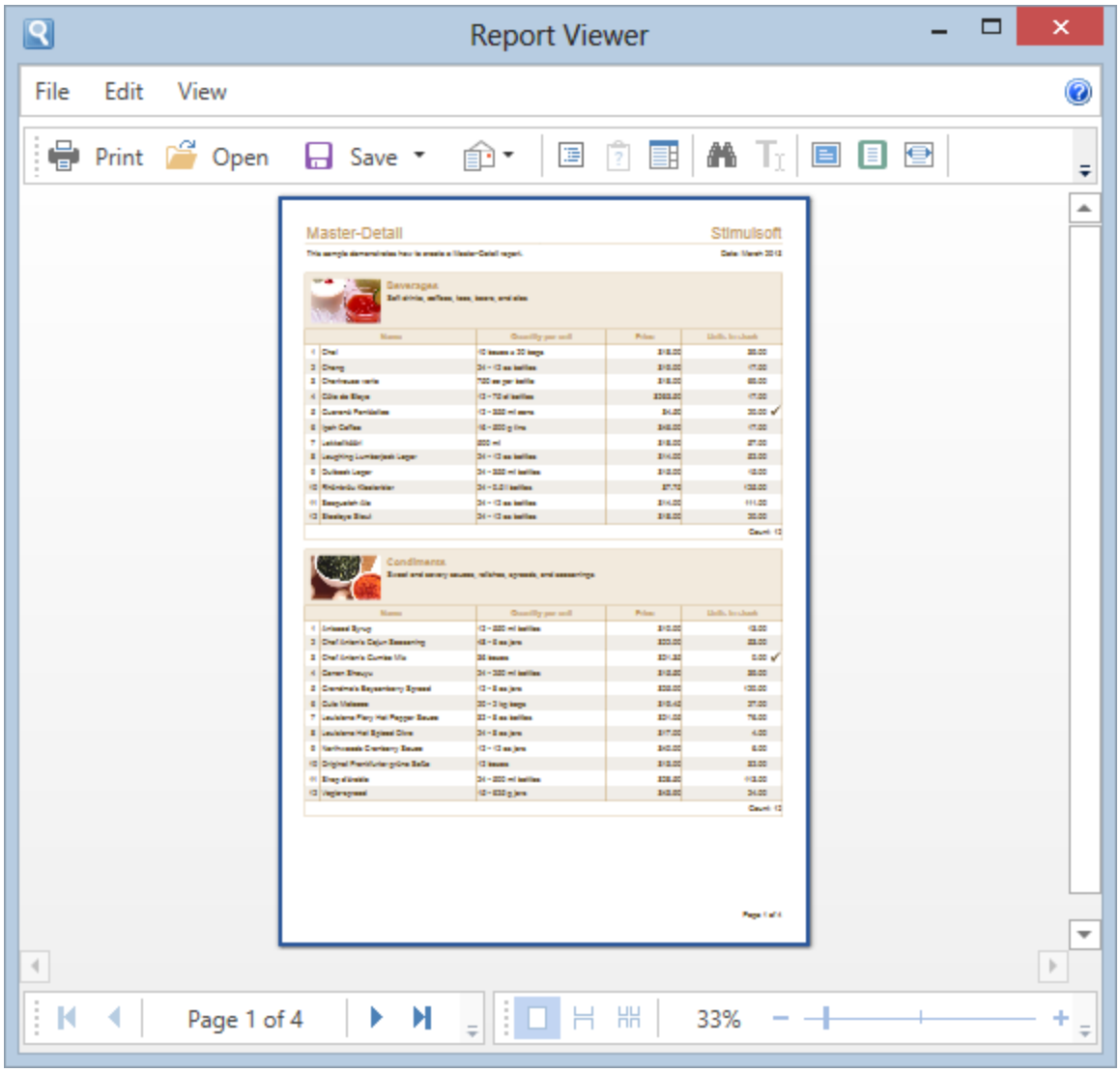


**Continuous.** In this mode all pages are placed into one vertical line. The picture below shows how this mode works.

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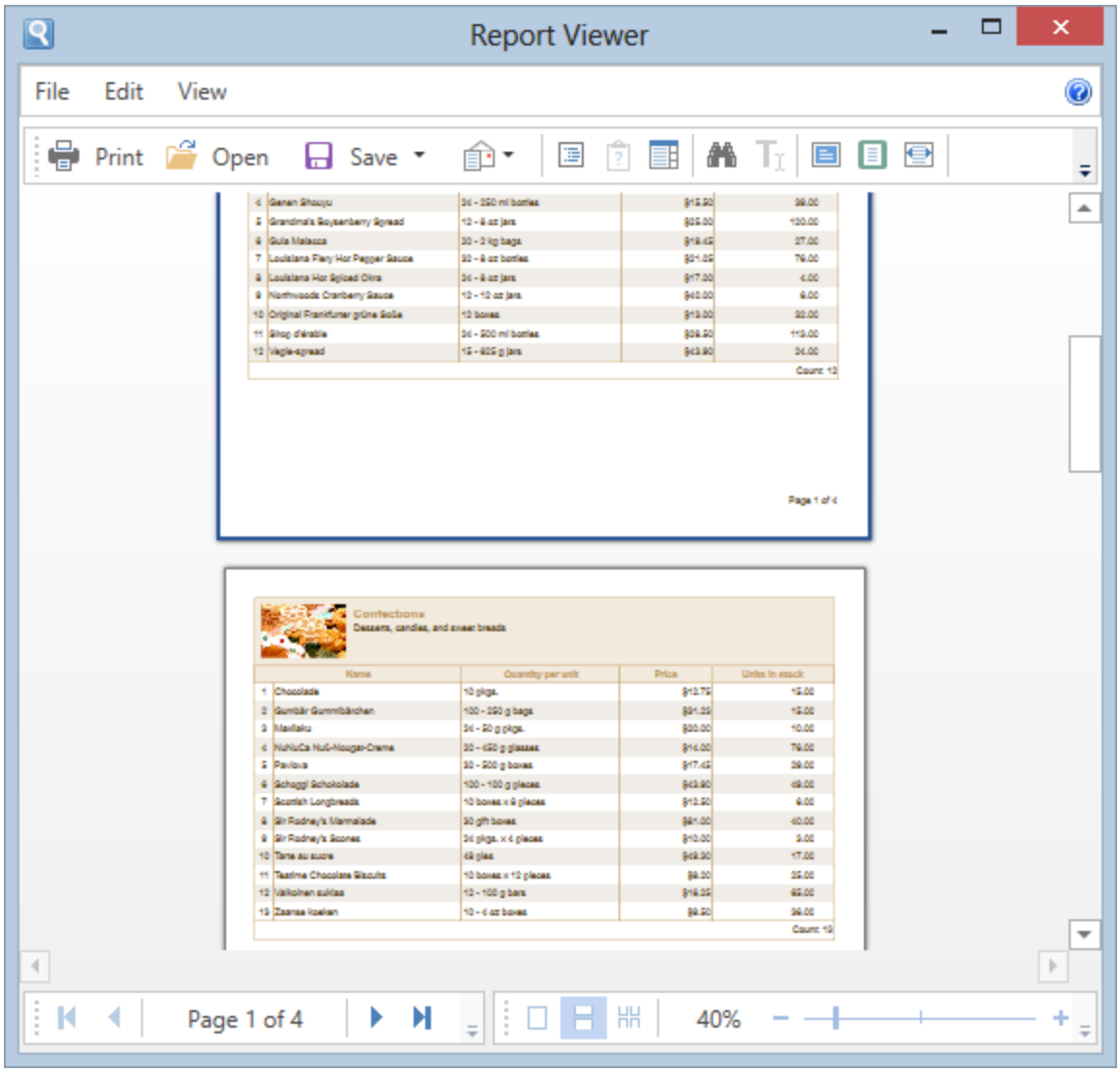


**Multiple Pages.** In this mode as many pages in the selected zoom as they can fill the window of the viewer are shown. The picture below shows how this mode works.

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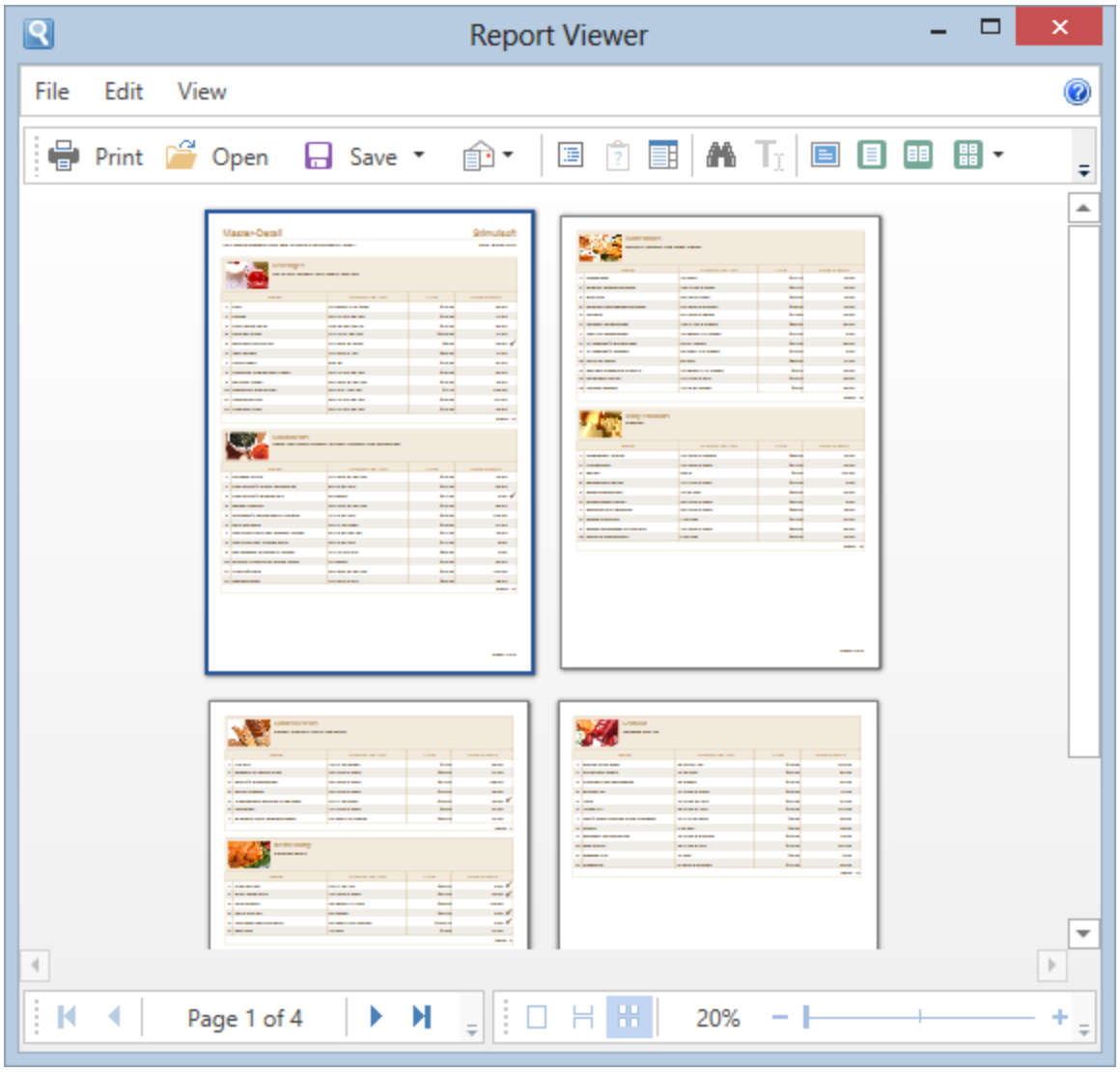
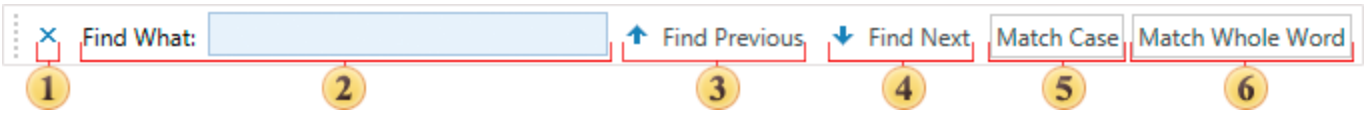



## 8.5 Search Panel

The search panel is used to search some text in the report. On the main toolbar this option can be enabled by clicking the binocular icon. All controls for search are placed on a single panel.




1. Close the search panel.
2. The text that should be found.
3. The button to run search.
4. The button to run search.

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5 If the flag is set, then search will be repeated considering the case.
6 If the flag is set, then search will be done considering the whole word.

## 8.6 Keyboard Shortcuts

The list of keyboard shortcuts in the report viewer is as follows:

| Shortcut | Actions |
|---|---|
| **Ctrl+P** | Print a report |
| **Ctrl+O** | Close a report |
| **Ctrl+Shift+N** | Add a new page to the report |
| **Ctrl+Shift+D** | Delete the current page of a report |
| **Ctrl+Shift+E** | Edit the current page of a report in the reports designer |
| **Ctrl+Shift+S** | Change report parameters |
| **Ctrl+B** | Enable/disable tree of bookmarks |
| **Ctrl+T** | Enable/disable thumbnails |
| **Ctrl+F** | Search |
| **Ctrl+E** | Edit components which support editing |
| **F2** | Run the full screen mode of view a report |
| **F3** | Set zoom of a report view - one page |
| **F4** | Set zoom of a report view - two pages |
| **F5** | Set zoom of a report view - by page width |
| **Ctrl+G** | Jump to page |
| **Shift+F2** | Enable the page view mode - one page |
| **Shift+F3** | Enable the page view mode - continues |
| **Shift+F4** | Enable the page view mode - some pages |

## 8.7 Sending Report via E-Mail

Any rendered report can be sent via **Email**. Send a report via Email following the instruction below.
- The report is exported as a file. The file format is defined by the user in the menu **Send Email**;
- Then create a new message and attach a file to the Email;
- A dialog of the Email client is open by default, i.e. the wizard for sending Emails is invoked.

The picture below shows the menu **Send Email**.

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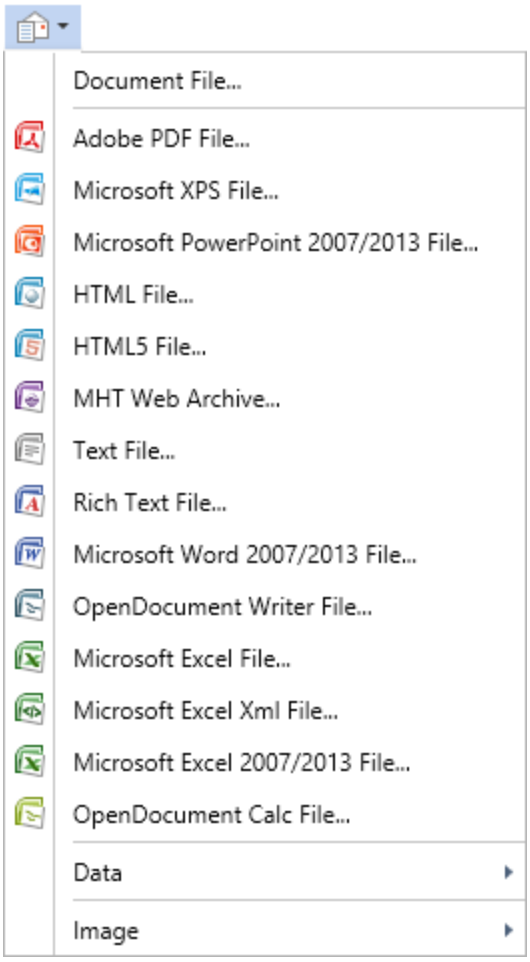
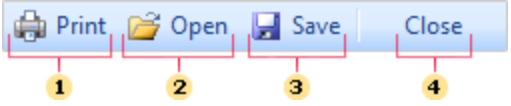



## 8.8 Dot-Matrix Viewer

The **Dot-Matrix** viewer is designed to preview the report before printing it on dot matrix printer. The Dot matrix printer is used to print only the text and characters of pseudographics. Accordingly the viewer displays only the text and borders of objects as pseudographics characters.

### 8.8.1 Toolbar

The picture below shows the toolbar of the **Dot-matrix** viewer:




1 Prints the report. After activation of this command the Print dialog will be displayed, where you will be asked to select printing options.

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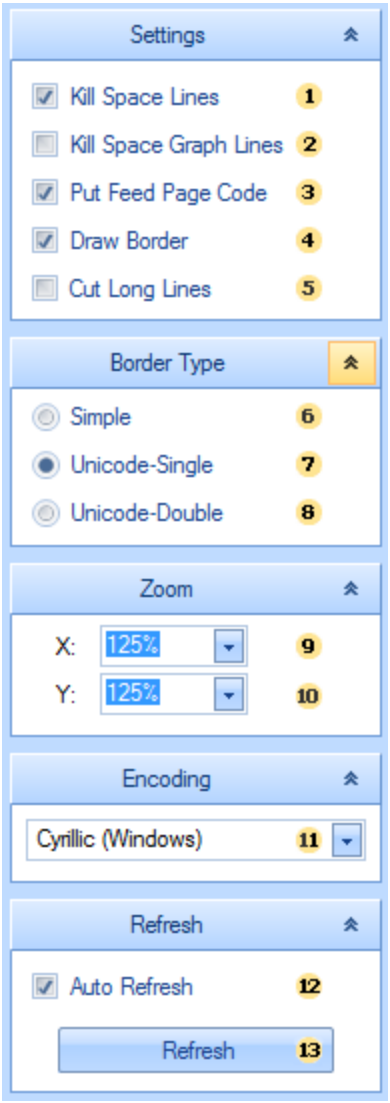
2 Opens a previously saved text file.
3 Saves the rendered report to a text file.
4 Closes the **Dot-matrix** viewer dialog box.

## 8.8.2 Bar Options

The **Options** bar is grouped and each group is located on a separate tab. The picture below shows the options bar:




1 The **Kill Space Lines** option removes empty rows in the text.
2 The **Kill Space Graph Lines** option deletes the rows that contain only the "vertical line" pseudographics characters.
3 The **Put Feed Page Code** option inserts the FormFeed symbol on the bottom of each page.
4 The **Draw Border** option draws the borders of the objects of the selected type.
5 The **Cut Long Lines** option cuts long lines of the text that is out of bounds of the text component.

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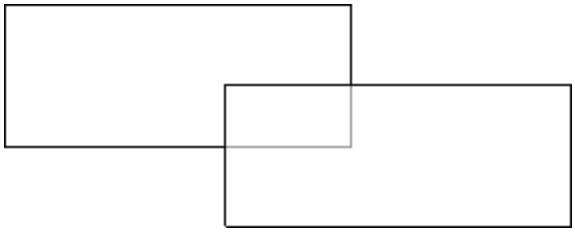
6 - 8 options are the parameters of the border and define its type:
6 **Simple** border is drawn with + - | symbols and will be saved and printed in any encoding;
7 **Unicode-Single** single lines of pseudographics are used;
8 **Unicode-Double** double lines of pseudographics are used;
Pseudographics characters are not present in each encoding.

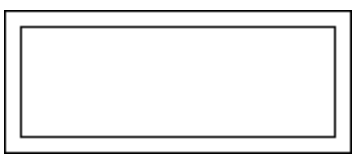
9 - 10 options. When exporting to text all the coordinates and sizes of objects are recalculated. Zoom **X** and Zoom **Y** coefficients control this conversion.
By default, Zoom **X** = 100%, Zoom **Y** = 100%. With these values of the parameter, the A4 page is converted to text with sizes of 80 characters by width and 62 rows by height.
This corresponds to using the **Pica** font of the printer (80 characters per line) and the line spacing **1,0**.
The following values are frequently used:
- Zoom **X** = 100% corresponds to using the **Pica** font of the printer (80 characters per line);
- Zoom X = 120% corresponds to using the **Elite** font of the printer (96 characters per line);
- Zoom X = 170% corresponds to using the condensed font of the printer (136 characters per line);
- Zoom Y = 100% corresponds to the using the line spacing 1,0.

9 **Zoom X: -** by the width of the page.
10 **Zoom Y: -** by the height of the page.
11 **Encoding** - encoding of the text.
12 **Auto Refresh** automatically updates the rendered report if there are any changes in the parameters.
13 The **Refresh** button is used to manually update the report.

## 8.9 Special Viewing Options in Web

**Recommendations on Placing Components on Page**
How the **StiWebViewer** helps to view a report? To view a report the **StiWebViewer** exports it to the HTML format. This HTML text is output in the part of the **StiWebViewer** that is used to show reports. The HTML file is formed as one big table. The output is done in the HTML format do there are some limitations when report rendering. Stimulsoft Reports stores all objects separately but not as a table. When converting a report to the HTML format the objects edges may be intersected. Such intersections may lead to incorrect output of a report in the browser, though the report generator tries to output a report correctly with overlapping objects. Therefore, it is better do not overlap objects. Examples of components overlapping are shown on the picture below.





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When report rendering, it is better use the grid. It allows placing objects by the grid and getting correct viewing a report in the browser.

**Using Graphic Objects in Report**

Stimulsoft Reports offers full set of graphic objects. The following graphic objects are used in web:

- Images;
- Charts;
- Graphic primitives (the Shape component);
- Bar-codes;
- RTF text;
- CheckBox.

The Vertical Line, Horizontal Line, Rectangle components are not graphic objects.
Also it is important to consider that vector images (WMF, EMF, EMF+) are not supported by the HTML format. So they will be converted to images in the pixel format.

**Notice!** All text components which contain text are rotated (the value of the **Angle** property is not 0) and converted to images. Besides, if the **ExportAsImage** property is set to **true** then the text components will also be converted to the image.

All components are joined with one rule - all of them will be converted as images. The HTML format does not allow passing an image in its body and the report generator uses the cache of a page or the cache of a session for saving images. When huge amount of calling to a report and multiple images in a report, there can be huge amount of objects in the page cache or in the session cache. And these objects will take additional server memory. Therefore, it is better do not use many graphic objects. Using the **ServerTimeOut** property can be used to set the time of objects caching in the page cache or in the session cache.

**Notice!** HTML supports some formats of showing images (JPEG, PNG, BMP, and GIF). It is possible to set the image type using the **ImageFormat** property of the StiWebViewer component. Every type of an image has its own advantages and disadvantages.

**Displaying Images Placed on Server**

If an image that should be output is static and can be saved on the server then it is recommended to use the **ImagerUrl** property of the **Image** component for showing images. When using this property the report generator does not save the image in the cache of a page or the cache of a session but puts a link on this image. So the report generator saves nothing in the cache of a page or the cache of a session and the server memory is not used for this.

**Printing Reports**

It is difficult to print a report from the browser. Stimulsoft Reports has three methods of printing:

- Converting a report to the PDF file and passing it to the end-user for printing.
- Printing a report with preview in the pop-up window.
- Printing without preview.

The first method is the best way. It allows printing a report more precisely. But it is required to have installed Adobe Acrobat to print a report to the PDF format. Often this requirement is a big disadvantage. When printing reports with preview the report generator creates a new pop-up window. A report in the HTML format is output in this window. The end-user may format this report and print it.

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In printing report without preview the report generator prints a report without preview. When choosing the method of printing characteristics of each method should be considered.

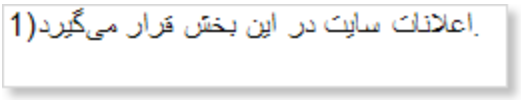
**Notice!** The StiWebViewer component cannot control page parameters (page size, page orientation, page margins) when printing using the 2 and 3 method. All parameters are controlled with the browser.

# 9 Right To Left

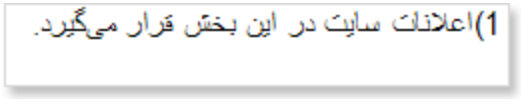
By default, components are output from left to right. The **Right to Left** property allows changing the mode of showing report items.

## 9.1 Text Component

How the text will be output depends on the **RightToLeft** property. If it is set to **false**, then a text (all symbols except letters) is output from left to right. The picture below shows a text sample in Arabic that is output from left to right:




If the **RightToLeft** property is set to **true**, then a text is output from right to left. The picture below shows a text sample in Arabic that is output from right to left:




In any case a text written in a right-to-left language will be output right to left.

## 9.2 Text In Cells Component

A text in cells is placed symbol-by-symbol (one symbol or a space - one cell). How the text will be output depends on the **RightToLeft** property. If it is set to **false**, then a text is output from left to right. The picture below shows a text sample in Arabic that is output from left to right:

If the **RightToLeft** property is set to **true**, then a text is output from left to right. The picture below

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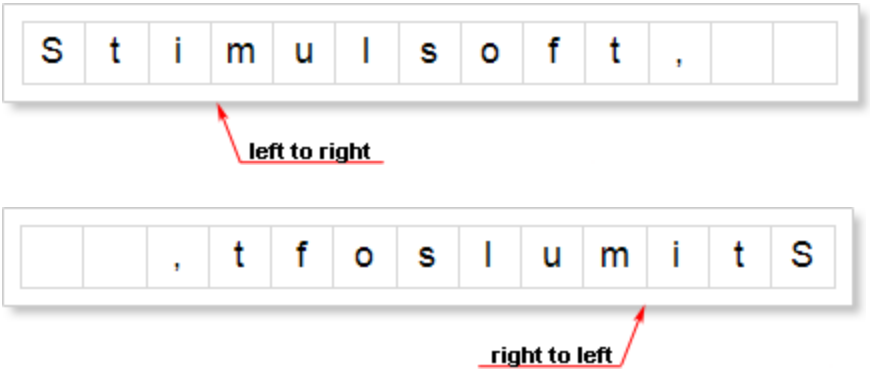
shows a text sample in Arabic that is output from right to left:

The **RightToLeft** property of the **Text in Cells** component works the same way with all languages. So a text characters and sy6mbols will be output from left to right or from right to right depending on the value of this property. The picture below shows a text output in "left to right" (the first picture) and right to left (second picture) modes:




The **RightToLeft** property depends on the **Continuous Text** property. If the **Continuous Text** property is set to **true**, then the **RightToLeft** property will not work. In other words, a text will be output from left to right regardless the **RightToLeft** property. If the **Continuous Text** property is set to **false**, then the text direction will depend on the value of the **RightToLeft** property.

## 9.3 Cross Table Component

The cross table component has the **RightToLeft** property, that allows showing a cross-table in the right-to-left mode. If the **RightToLeft** property is set to **false**, then the cross table is rendered in the "left-to-right" mode. The picture below shows a cross table sample with the **RightToLeft** property set to **false**:

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| Products | CategoryName | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Country | Beverages | Condiments | Confections | Dairy Products | Grains/Cereals | Meat/Poultry | Produce | Seafood | Total |
| Australia | 15 | 24 | 29 | | 38 | | 20 | 42 | 168 |
| Brazil | 20 | | | | | | | | 20 |
| Canada | | 113 | 17 | | | 136 | | | 266 |
| Denmark | | | | | | | | 100 | 100 |
| Finland | 57 | | 75 | | | | | | 132 |
| France | 86 | | | 98 | | | | 62 | 246 |
| Germany | 125 | 32 | 140 | | 22 | | 26 | 10 | 355 |
| Italy | | | | 23 | 57 | | | | 80 |
| Japan | | 39 | | | | 29 | 39 | 55 | 162 |
| Netherlands | | | 51 | | | | | | 51 |
| Norway | | | | 164 | | | | | 164 |
| Singapore | 17 | 27 | | | 26 | | | | 70 |
| Spain | | | | 108 | | | | | 108 |
| Sweden | | | | | 165 | | | 224 | 389 |
| UK | 56 | 13 | 74 | | | | | | 143 |
| USA | 183 | 259 | | | | | 15 | 208 | 665 |
| Total | 559 | 507 | 386 | 393 | 308 | 165 | 100 | 701 | 3119 |

If the **RightToLeft** property of a cross table is set to **true**, then the cross table is output in the "right-to-left" mode. The picture below shows a cross table sample with the **RightToLeft** property set to **true** :

| CategoryName | | | | | | | | | Products |
|---|---|---|---|---|---|---|---|---|---|
| Total | Seafood | Produce | Meat/Poultry | Grains/Cereals | Dairy Products | Confections | Condiments | Beverages | Country |
| 168 | 42 | 20 | | 38 | | 29 | 24 | 15 | Australia |
| 20 | | | | | | | | 20 | Brazil |
| 266 | | | 136 | | | 17 | 113 | | Canada |
| 100 | 100 | | | | | | | | Denmark |
| 132 | | | | | | 75 | | 57 | Finland |
| 246 | 62 | | | | 98 | | | 86 | France |
| 355 | 10 | 26 | | 22 | | 140 | 32 | 125 | Germany |
| 80 | | | | 57 | 23 | | | | Italy |
| 162 | 55 | 39 | 29 | | | | 39 | | Japan |
| 51 | | | | | | 51 | | | Netherlands |
| 164 | | | | | 164 | | | | Norway |
| 70 | | | | 26 | | | 27 | 17 | Singapore |
| 108 | | | | | 108 | | | | Spain |
| 389 | 224 | | | 165 | | | | | Sweden |
| 143 | | | | | | 74 | 13 | 56 | UK |
| 665 | 208 | 15 | | | | | 259 | 183 | USA |
| 3119 | 701 | 100 | 165 | 308 | 393 | 386 | 507 | 559 | Total |

By default, the **RightToLeft** property of the cross table is set to **false**, this means that the cross table is output from left to right.

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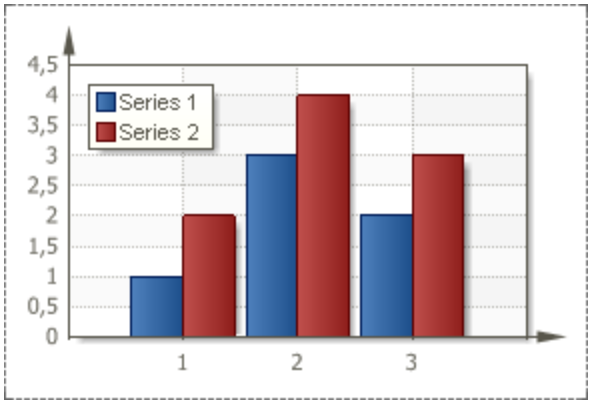
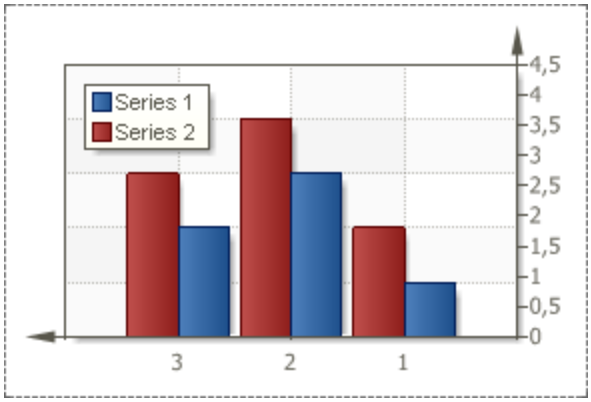
## 9.4 Chart Component

The **Reverse Horizontal** property is used to flip a chart horizontally. The picture below shows an example of a chart, with the **Reverse Horizontal** property set to **false** (As one can see, the values of the x-axis have left to right direction.):




If the **Reverse Horizontal** property is set to **true**, then the chart will appear in the opposite direction horizontally. The picture below shows an example of a chart, with the Reverse Horizontal property is set to true (As one can see, the values of the x-axis have right to left direction.):




By default, the **Reverse Horizontal** property is set to **false**.

## 9.5 Columns on Page

**Stimulsoft Reports** prints bands until there is a free space on a page. Then, instead of creating a new page, the reporting tool adds a new column on the right. Then it prints data from the top of a page. This happens until all data are printed and page will be exhausted. The columns direction is always from top to bottom, and a mode of showing columns can be different. there are two modes: "left to right" and "right to left". The mode of showing columns on a page depends on the value of the **RightToLeft** property of a page. If the **RightToLeft** property is set to **false**, then columns will be output in the "left to right" mode. If this property of a page is set to **true**, then columns will be output in the "right to left" mode. The picture below shows columns on a page output in two modes:

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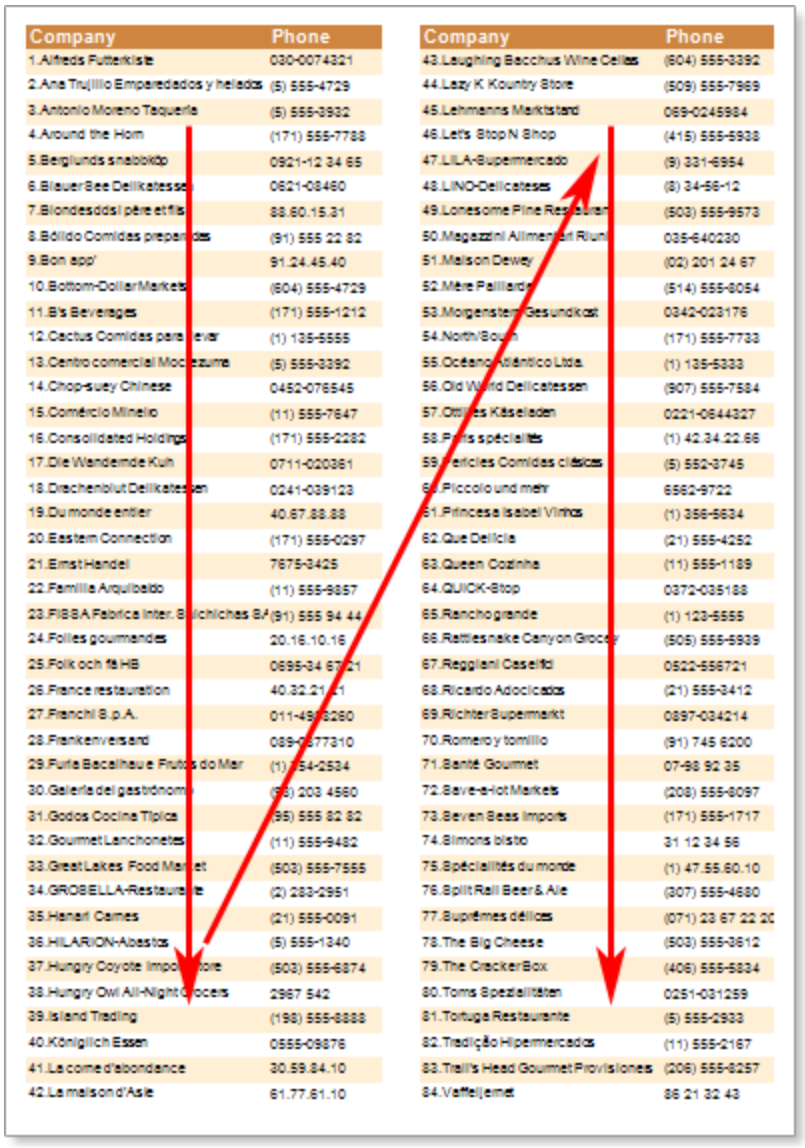

| Company | Phone |
|---|---|
| 1.Alfreds Futterkiste | 030-0074321 |
| 2.Ana Trujillo Emparedados y helados | (5) 555-4729 |
| 3.Antonio Moreno Taquería | (5) 555-3932 |
| 4.Around the Horn | (171) 555-7788 |
| 5.Berglunds snabbköp | 0921-12 34 65 |
| 6.Blauer See Delikatessen | 0621-08460 |
| 7.Blondesddsl père et fils | 88.60.15.31 |
| 8.Bólido Comidas preparadas | (91) 555 22 82 |
| 9.Bon app' | 91.24.45.40 |
| 10.Bottom-Dollar Markets | (604) 555-4729 |
| 11.B's Beverages | (171) 555-1212 |
| 12.Cactus Comidas para llevar | (1) 135-5555 |
| 13.Centro comercial Moctezuma | (5) 555-3392 |
| 14.Chop-suey Chinese | 0452-076545 |
| 15.Comércio Mineiro | (11) 555-7647 |
| 16.Consolidated Holdings | (171) 555-2282 |
| 17.Die Wandernde Kuh | 0711-020361 |
| 18.Drachenblut Delikatessen | 0241-039123 |
| 19.Du monde entier | 40.67.88.88 |
| 20.Eastern Connection | (171) 555-0297 |
| 21.Ernst Handel | 7675-3425 |
| 22.Familia Arquibaldo | (11) 555-9857 |
| 23.FISSA Fabrica Inter. Salchichas S.A. | (91) 555 94 44 |
| 24.Folies gourmandes | 20.16.10.16 |
| 25.Folk och fä HB | 0695-34 67 21 |
| 26.France restauration | 40.32.21.21 |
| 27.Franchi S.p.A. | 011-4988260 |
| 28.Frankenversand | 089-0877310 |
| 29.Furia Bacalhau e Frutos do Mar | (1) 354-2534 |
| 30.Galería del gastrónomo | (93) 203 4560 |
| 31.Godos Cocina Típica | (95) 555 82 82 |
| 32.Gourmet Lanchonetes | (11) 555-9482 |
| 33.Great Lakes Food Market | (503) 555-7555 |
| 34.GROSELLA-Restaurante | (2) 283-2951 |
| 35.Hanari Carnes | (21) 555-0091 |
| 36.HILARION-Abastos | (5) 555-1340 |
| 37.Hungry Coyote Import Store | (503) 555-6874 |
| 38.Hungry Owl All-Night Grocers | 2967 542 |
| 39.Island Trading | (198) 555-8888 |
| 40.Königlich Essen | 0555-09876 |
| 41.La corne d'abondance | 30.59.84.10 |
| 42.La maison d'Asie | 61.77.61.10 |

| Company | Phone |
|---|---|
| 43.Laughing Bacchus Wine Cellars | (604) 555-3392 |
| 44.Lazy K Kountry Store | (509) 555-7969 |
| 45.Lehmanns Marktstand | 069-0245984 |
| 46.Let's Stop N Shop | (415) 555-5938 |
| 47.LILA-Supermercado | (9) 331-6954 |
| 48.LINO-Delicateses | (8) 34-56-12 |
| 49.Lonesome Pine Restaurant | (503) 555-9573 |
| 50.Magazzini Alimentari Riuniti | 035-640230 |
| 51.Maison Dewey | (02) 201 24 67 |
| 52.Mère Paillarde | (514) 555-8054 |
| 53.Morgenstern Gesundkost | 0342-023176 |
| 54.North/South | (171) 555-7733 |
| 55.Océano Atlántico Ltda. | (1) 135-5333 |
| 56.Old World Delicatessen | (907) 555-7584 |
| 57.Ottilies Käseladen | 0221-0644327 |
| 58.Paris spécialités | (1) 42.34.22.66 |
| 59.Pericles Comidas clásicas | (5) 552-3745 |
| 60.Piccolo und mehr | 6562-9722 |
| 61.Princesa Isabel Vinhos | (1) 356-5634 |
| 62.Que Delícia | (21) 555-4252 |
| 63.Queen Cozinha | (11) 555-1189 |
| 64.QUICK-Stop | 0372-035188 |
| 65.Rancho grande | (1) 123-5555 |
| 66.Rattlesnake Canyon Grocery | (505) 555-5939 |
| 67.Reggiani Caseifici | 0522-556721 |
| 68.Ricardo Adocicados | (21) 555-3412 |
| 69.Richter Supermarkt | 0897-034214 |
| 70.Romero y tomillo | (91) 745 6200 |
| 71.Santé Gourmet | 07-98 92 35 |
| 72.Save-a-lot Markets | (208) 555-8097 |
| 73.Seven Seas Imports | (171) 555-1717 |
| 74.Simons bistro | 31 12 34 56 |
| 75.Spécialités du monde | (1) 47.55.60.10 |
| 76.Split Rail Beer & Ale | (307) 555-4680 |
| 77.Suprêmes délices | (071) 23 67 22 20 |
| 78.The Big Cheese | (503) 555-3612 |
| 79.The Cracker Box | (406) 555-5834 |
| 80.Toms Spezialitäten | 0251-031259 |
| 81.Tortuga Restaurante | (5) 555-2933 |
| 82.Tradição Hipermercados | (11) 555-2167 |
| 83.Trail's Head Gourmet Provisioners | (206) 555-8257 |
| 84.Vaffeljernet | 86 21 32 43 |

**left to right**

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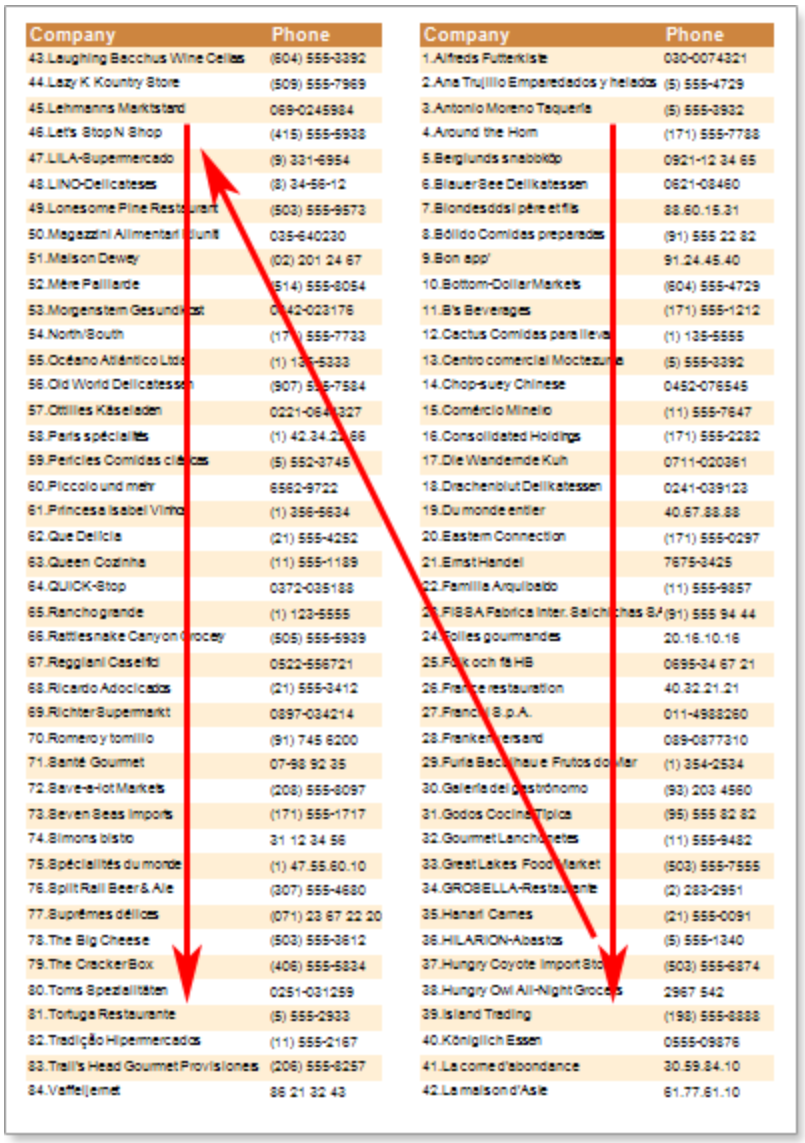

| Company | Phone |
|---|---|
| 43.Laughing Bacchus Wine Cellars | (604) 555-3392 |
| 44.Lazy K Kountry Store | (509) 555-7969 |
| 45.Lehmanns Marktstand | 069-0245984 |
| 46.Let's Stop N Shop | (415) 555-5938 |
| 47.LILA-Supermercado | (9) 331-6954 |
| 48.LINO-Delicateses | (8) 34-56-12 |
| 49.Lonesome Pine Restaurant | (503) 555-9573 |
| 50.Magazzini Alimentari Riuniti | 035-640230 |
| 51.Maison Dewey | (02) 201 24 67 |
| 52.Mère Paillarde | (514) 555-8054 |
| 53.Morgenstern Gesundkost | 0342-023176 |
| 54.North/South | (171) 555-7733 |
| 55.Océano Atlántico Ltda. | (1) 135-5333 |
| 56.Old World Delicatessen | (907) 555-7584 |
| 57.Ottilies Käseladen | 0221-0644327 |
| 58.Paris spécialités | (1) 42.34.22.66 |
| 59.Pericles Comidas clásicas | (5) 552-3745 |
| 60.Piccolo und mehr | 6562-9722 |
| 61.Princesa Isabel Vinhos | (1) 356-5634 |
| 62.Que Delícia | (21) 555-4252 |
| 63.Queen Cozinha | (11) 555-1189 |
| 64.QUICK-Stop | 0372-035188 |
| 65.Rancho grande | (1) 123-5555 |
| 66.Rattlesnake Canyon Grocery | (505) 555-5939 |
| 67.Reggiani Caseifici | 0522-556721 |
| 68.Ricardo Adocicados | (21) 555-3412 |
| 69.Richter Supermarkt | 0897-034214 |
| 70.Romero y tomillo | (91) 745 6200 |
| 71.Santé Gourmet | 07-98 92 35 |
| 72.Save-a-lot Markets | (208) 555-8097 |
| 73.Seven Seas Imports | (171) 555-1717 |
| 74.Simons bistro | 31 12 34 56 |
| 75.Spécialités du monde | (1) 47.55.60.10 |
| 76.Split Rail Beer & Ale | (307) 555-4680 |
| 77.Suprêmes délices | (071) 23 67 22 20 |
| 78.The Big Cheese | (503) 555-3612 |
| 79.The Cracker Box | (406) 555-5834 |
| 80.Toms Spezialitäten | 0251-031259 |
| 81.Tortuga Restaurante | (5) 555-2933 |
| 82.Tradição Hipermercados | (11) 555-2167 |
| 83.Trail's Head Gourmet Provisioners | (206) 555-8257 |
| 84.Vaffeljernet | 86 21 32 43 |

| Company | Phone |
|---|---|
| 1.Alfreds Futterkiste | 030-0074321 |
| 2.Ana Trujillo Emparedados y helados | (5) 555-4729 |
| 3.Antonio Moreno Taquería | (5) 555-3932 |
| 4.Around the Horn | (171) 555-7788 |
| 5.Berglunds snabbköp | 0921-12 34 65 |
| 6.Blauer See Delikatessen | 0621-08460 |
| 7.Blondesddsl père et fils | 88.60.15.31 |
| 8.Bólido Comidas preparadas | (91) 555 22 82 |
| 9.Bon app' | 91.24.45.40 |
| 10.Bottom-Dollar Markets | (604) 555-4729 |
| 11.B's Beverages | (171) 555-1212 |
| 12.Cactus Comidas para llevar | (1) 135-5555 |
| 13.Centro comercial Moctezuma | (5) 555-3392 |
| 14.Chop-suey Chinese | 0452-076545 |
| 15.Comércio Mineiro | (11) 555-7647 |
| 16.Consolidated Holdings | (171) 555-2282 |
| 17.Die Wandernde Kuh | 0711-020361 |
| 18.Drachenblut Delikatessen | 0241-039123 |
| 19.Du monde entier | 40.67.88.88 |
| 20.Eastern Connection | (171) 555-0297 |
| 21.Ernst Handel | 7675-3425 |
| 22.Familia Arquibaldo | (11) 555-9857 |
| 23.FISSA Fabrica Inter. Salchichas S.A. | (91) 555 94 44 |
| 24.Folies gourmandes | 20.16.10.16 |
| 25.Folk och fä HB | 0695-34 67 21 |
| 26.France restauration | 40.32.21.21 |
| 27.Franchi S.p.A. | 011-4988260 |
| 28.Frankenversand | 089-0877310 |
| 29.Furia Bacalhau e Frutos do Mar | (1) 354-2534 |
| 30.Galería del gastrónomo | (93) 203 4560 |
| 31.Godos Cocina Típica | (95) 555 82 82 |
| 32.Gourmet Lanchonetes | (11) 555-9482 |
| 33.Great Lakes Food Market | (503) 555-7555 |
| 34.GROSELLA-Restaurante | (2) 283-2951 |
| 35.Hanari Carnes | (21) 555-0091 |
| 36.HILARION-Abastos | (5) 555-1340 |
| 37.Hungry Coyote Import Store | (503) 555-6874 |
| 38.Hungry Owl All-Night Grocers | 2967 542 |
| 39.Island Trading | (198) 555-8888 |
| 40.Königlich Essen | 0555-09876 |
| 41.La corne d'abondance | 30.59.84.10 |
| 42.La maison d'Asie | 61.77.61.10 |

right to left

## 9.6 Columns in Data Band

**"Down Then Right" direction**

In this direction the reporting tool tries equally to distribute all rows between columns. Then, after distribution rows between columns, the first column is output. And the column is not output to the end of a page, but until the number of elements that are distributed for this column. Then the second column is output. So the data take as much space on the page as it is required. So data will be distributed approximately equally among all the columns. And all data will be presented on a sheet in a convenient form. The mode of showing columns depends on the value of the **RightToLeft** property of the **DataBand**. If the **RightToLeft** property is set to **false**, then columns on the report page will be displayed from left to right. If the **RightToLeft** property is set to **true**, then the column on the report page will be displayed from right to left. The picture below shows examples of two modes of showing columns on report pages:

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left to right

right to left

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**"Right Then Down" direction**

In this direction lines are sequentially output in the **Data Band**. By default the mode of output is left to right. Row are displayed - one line in one column. When all rows are displayed in columns in the **Data Band**, a new Data Band is created and it again displays all the rows in columns. So, the data will take as much space on the page as it is required. The mode of showing columns depends on the value of the **RightToLeft** property of the **DataBand**. If the **RightToLeft** property is set to **false**, then columns on the report page will be displayed from left to right. If the **RightToLeft** property is set to **true**, then the column on the report page will be displayed from right to left. The picture below shows examples of two modes of showing columns on report pages:

**left to right**

**right to left**

# 10 Importing Reports

This section describes the tools to convert formats of other reporting tools into Stimulsoft Reports formats. Importing utilities are designed to convert the report templates from other formats into Stimulsoft Reports (*.mrt). You can import files of the following formats

- ✓ Crystal Reports;
- ✓ RDL;
- ✓ RTF;
- ✓ Active Reports;
- ✓ Xtra Reports;
- ✓ Fast Reports.Net;
- ✓ ReportSharpShooter.

## 10.1 Converter

Consider viewing the structure of the tool on **Crystal Reports** importing utility:

**System requirements**

The .rpt file format is closed. Therefore, work with these templates is done via Crystal Reports interfaces using the managed dll. So, for work with this utility, installed Crystal Reports is required.

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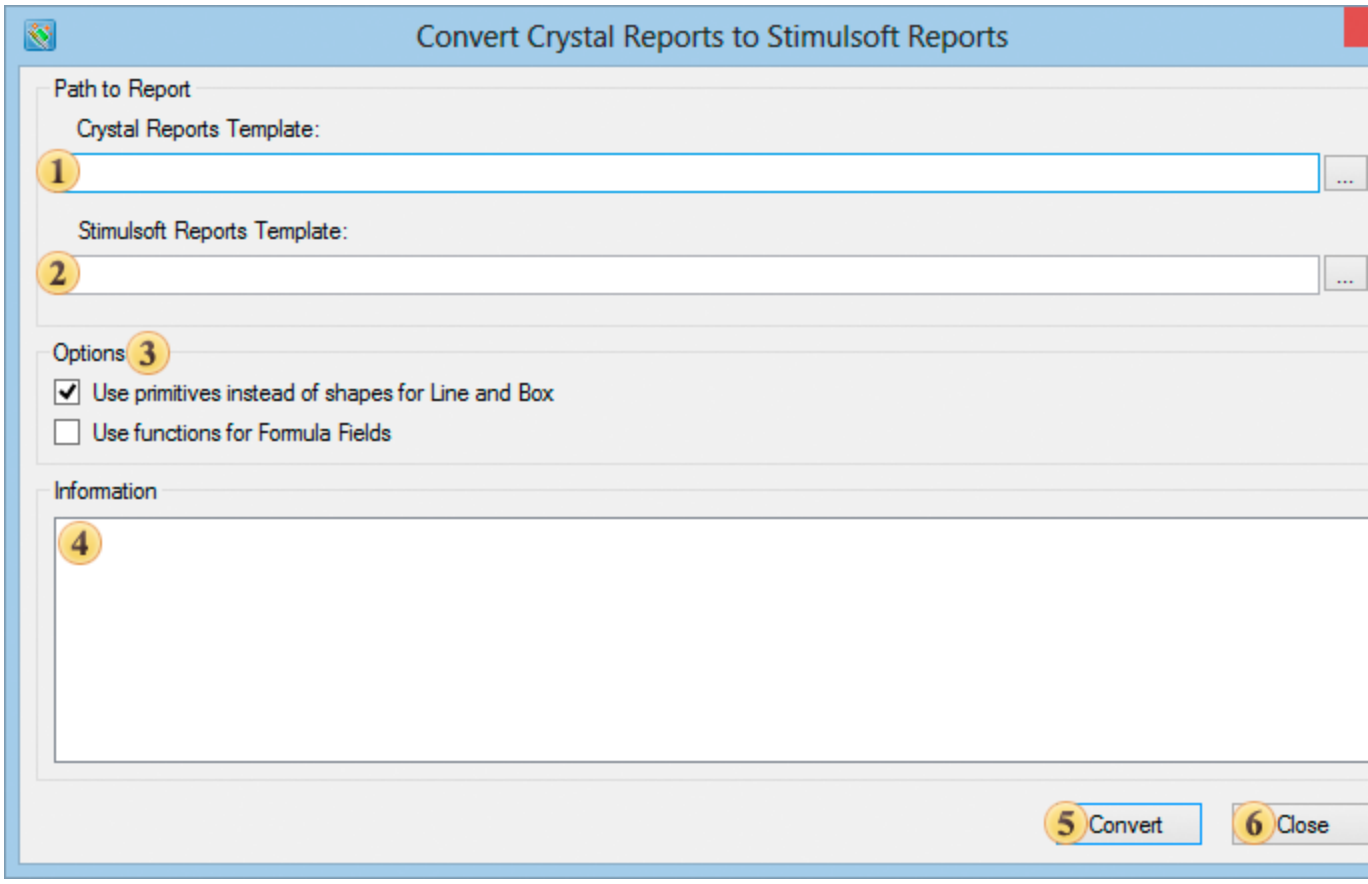


1 The field **Crystal Reports Template** is used to specify the Crystal Report file you wish to convert.
2 The field **Stimulsoft Reports Template** is used to specify a path where you wish to save the converted **.rpt** file as an **.mrt** file.
3 The field **Options** consists of two check boxes: **Use primitives instead of shapes for Line** and **Set Linked property for all components**.
4 The **Information** field shows the progress of conversion process.
5 The button **Convert** is used to run the conversion.
6 The button **Close** is used to either close the tool dialog after conversion or to cancel the conversion.

### System requirements

The Crystal Reports file format (*.rpt) is closed and proprietary. Therefore, work with these templates is done via Crystal Reports interfaces using the managed dll. So, for work with this utility, installed Crystal Reports is required.

### Work with utility

The Import.CrystalReports interface consists of the following items:

### Crystal Reports Template

The Crystal Reports Template field is used to specify the path to the selected report template in the Crystal Reports (*.rpt) format. A path and a name can be selected either using the Browse button on the right or by writing the path or a name manually.

### Stimulsoft Reports Template

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The Stimulsoft Reports Template field is used to specify the path where the final report template in the Stimulsoft Reports (*.mrt) format is saved. A path and a name can be selected either using the Browse button that is placed on the right or to write it manually.

**Use primitives instead of shapes for the Line and the Box**
If the flag is not enabled then the Line and the Box components will be converted to ordinary primitives (shapes, VerticalLine/HorizontalLine, and Rectangle/RoundedRectangle). If the flag is enabled then the Line and the Box components will be converted to special primitives (VerticalLinePrimitive/ HorizontalLinePrimitive and RectanglePrimitive/RoundedRectanglePrimitive). When viewing/printing reports, there are no big differences between graphic and special primitives. Graphic primitives are exported as images when exporting. So it is easier to work with special primitives. But, due to Crystal Reports peculiarity, special primitives cannot work correctly on complex reports. This is why there is the ability to select the option.

**Use functions for Formula Fields**
In each Formula Field either expression or a data string can be placed. Each Formula Field is converted into the variable in the data dictionary. If the Use functions for Formula Fields flag is enabled, then the Function flag is set in the variable. In other words, when report rendering, Stimulsoft Reports will use the value of a variable as an expression and will try to calculate the value of this expression. If the Use functions for Formula Fields flag is not enabled, then the value of a variable will be used as the data string.

**Information**
In this field the result of file conversion will be shown.

**Problems with conversion**
One of the main problems in conversion is that not all object properties are available when working with managed dll. The second problem is the different reporting tools structures, such as data structures, work with bands etc. Therefore, it is not always possible to convert a report automatically, and it is required to correct a report manually.

**Most frequent problems:**
**DataBase:**
Crystal Reports often uses their internal libraries when working with data bases. It is possible to get only some properties from .NET and it is impossible to get ConnectionString. So, not all data bases can be identified. By default, for not identified data bases, the StiOleDbDatabase type and ConnectionString template without specifying the provider is used.

**Data Bases:**
In CrystalReports, each report/sub-report has its own data dictionary, and the data base will be described differently in subreports. In Stimulsoft Reports, the common data dictionary is used. So, all dictionaries are united after conversion. If the data base is repeated then it is not included into the common dictionary.

**Image:**
Sizes and locations can be indicated for images but, if it is saved in the report template, then it is impossible to get the content of an image.

**FormulaField:**
Expressions and formulas can be placed in these fields. On the current moment, parsing and syntax of

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these expressions are written “as is”. So in many cases further manual correction is required.
{Crystal Reports allows using expressions and formulas in FormulaFields. On the current moment parsing and syntax conversion cannot be done, expressions are written 'as is'. Therefore, in many cases, it is required further manual correction of expressions.}
The section describes the tools for converting third party formats to internal Stimulsoft Reports formats. You may download the tools described below from the **Tools** section at http://www.stimulsoft.com/en/downloads

**Note**. Report SharpShooter v2.0 + applies different internal file format of the report template than the older versions. The importing utility is made for the new format. Older report templates are converted partially. It is better to re-save old reports in the new format and then import them.

# 11 Exports

This section describes principles of saving rendered reports to different formats, basic characteristics of methods for export, export optimization guidelines data structure which are used in export methods. Stimulsoft Reports supports great many export formats to save rendered reports. Many clients think that there are too many formats. But when you need to get file of definite format type, write only one string of code and the format is not PDF, HTML or RTF, only Stimulsoft Reports may help. We do not think that too many export formats in our report generator is disadvantage and continually work on adding new formats. The more exports the better, as they say.

## 11.1 Available File Formats

A list of supported file formats is represented in the table below. All exports are joined into groups.

| Export Name |
|---|
| **PDF** (Portable Document Format) |
| **XPS** (XML Paper Specification) |
| **HTML** (HyperText Markup Language) |
| **HTML5** (HyperText Markup Language) |
| **MHTML** (MIME HTML) |
| **TXT** (Text File) |
| **RTF** (Rich Text) |
| **Microsoft Word 2007/2010** |
| **ODT** (Open Document Text) |
| **Microsoft Excel** |
| **Microsoft Excel Xml** |

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| |
|---|
| **Microsoft Excel 2007/2010** |
| **Microsoft Power Point 2007/2010** |
| **ODS** (Open Document Spreadsheet) |
| **CSV** (Comma Separated Values) |
| **DBF** (DataBase File) |
| **XML** (eXtensible Markup Language) |
| **DIF** (Data Interchange Format) |
| **SYLK** (Symbolic Link) |
| **BMP** (Bitmap) |
| **GIF** (Graphics Interchange Format) |
| **PNG** (Portable Network Graphics) |
| **TIFF** (Tagged Image File Format) |
| **JPEG** (Joint Photographic Experts Group) |
| **PCX** (PCExchange) |
| **WMF** (Windows MetaFile) |
| **SVG** (Scalable Vector Graphics) |

## 11.2 Common Export Settings

These chapters describe export settings which are not unique and are met in a few exports. Therefore, to prevent describing them again and again, they are joined in this section.

### 11.2.1 Image Quality

Image quality is the compression degree of JPEG. If the compression is low then an image is of good quality and has big file size. If the compression is high then an image is of bad quality and has small file size. In Stimulsoft Reports an image quality can vary from 0.0 (the lowest quality) to 1.0 (highest quality). If an image quality is 1.0 it does not mean that the image is saved without compression. The JPEG algorithm always compresses an image. The 1.0 quality means that an image quality will be the same as the quality of an original document but the file size will be smaller than the original. The 0.0 quality means that the image has slightest similarity to the original document. In practice, the 0.9 quality has not great distinction from the 1.0 quality but the image with lower than the 0.1 quality looks bad. By default, in Stimulsoft Reports the image quality is 0.75.

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### 11.2.2 Image Resolution

Raster images such as scanned photos consist of small cells called pixels. Image resolution depends on the pixel size and is measured in pixels per inch, ppi, and sometimes in dots per inch, dpi. The higher resolution the more pixels the image contains and, accordingly, the more size of the image. In Stimulsoft Reports it is possible to set any image resolution. But when increasing the resolution in 2 times the image size will increase in 4 times. Also it is not good to set the image resolution more than maximal resolution of an output device. For example, devices may have the following resolution:

- matrix printer - 72dpi
- monitor screen - 96dpi
- laser printers - 300dpi or 600dpi
- high-end printers - 1200dpi and higher.

By default the resolution is 100dpi.

### 11.2.3 Image Comparer

Sometimes repetitive image can be met in a report, for example, company logos on the header of each page. If do not process such duplicates then a report after export will have big size. Some formats allows exporting only one image and then refer to it from different parts of a document. In Stimulsoft Reports, there is a special class that calculates check sums and searches and processes duplicates. Image processing may slow down the process of exporting, so it is possible to disable this feature. Each export has its own property to enable or disable image comparison. By default this property is always enabled.

### 11.2.4 Convert Digits to Arabic

Arabs do not use Arabic digits. They use Hindi digits and Arabic digits are auxiliary (the same as Roman digits for us). But, in any case, all digits are written from left to right. This property indicates whether it is necessary to convert Roman digits (ASCII 0030h-0039h) to Arabic digits (Unicode 0660h-0669h or 06F0h-06F9h, depending on the ArabicDigitsType property). In each types of export the digits conversion can be set by their own property.

### 11.2.5 Arabic Digits Type

Arabic digits have two variants of drawing: Standard and Eastern. The property allows selecting the type of Arabic digits that will be used in export: Standard or Eastern; by default the Standard type is used. In each export the type of Arabic digits is enabled or disabled by its own property.

### 11.2.6 Divide Segment Pages

Stimulsoft Reports allows creating segmented pages. These are pages which horizontal and/or vertical size are increased in some times. Some applications, such as MS Excel, allows working with pages of

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any size, because breaking into small segments can is processed with the spreadsheet itself. Other applications, such as MS Word, cannot break pages into small segments. For such applications segmented pages are broken into separate pages on the stage of selected export; if this property is set to **false** then pages are passed "as is" without breaking into segments. Each type of export has its own property for breaking segmented pages.

### 11.2.7 Remove Empty Space at Bottom

Many exports uses the table mode of export. In this mode data is converted into one table. If, in the initial report, there is an empty space on the bottom of a page then the table is broken. The following property allows removing empty space at the bottom of a page and resulting table is not broken. If it is necessary to save the initial view of a document then it is necessary to set this property to **false**. In each type of exports their own property is used.

### 11.2.8 Use One Page Header and Footer

When exporting to Excel then all report is converted in one table. Headers and footers of a page break this table. This property leaves only the first header and the last header of a page. All other headers and footers are removed. If it is necessary to save the initial view of a document then it is necessary to set this property to **false**. For each type of exports their own property is used.

## 11.3 Export Reports From Code

Stimulsoft Reports offers many ways of exporting rendered reports to other formats. Each method of export to other format has several settings. For exporting rendered reports Stimulsoft Reports uses a system of services. This means that all objects which are used in export are represented in the collection of services and when it is necessary to export a report, the report generator searches the appropriate service in the collection of services. There are two ways of exporting rendered formats to other formats from code: using the **ExportDocument** method of the **StiReport** class, and using direct creating or getting from a collection of services the required export service.

### 11.3.1 Export Formats

The **StiExportFormat** enumeration describes export formats. Brief information of exports is represented below.

**Formats which are used for representing documents and allows for easy viewing and printing:**
- **PDF** - export to Adobe PDF.
- **XPS** - export to Microsoft XPS.

**Web formats:**
- **Html** - export to Html by default. This element duplicates the HtmlTable mode.
- **HtmlTable** - export to Html using the Html Table element, to create a report structure.

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- **HtmlSpan** - export to Html using the Html Span element, to create a report structure.
- **HtmlDiv** - export to Html using the Html Div element, to create a report structure.
- **Mht** - export to WebArchive. This format is supported only in Microsoft IE.

**Text formats:**
- **Text** - export to Text.
- **Rtf** - export to Rich Text Format by default. This element duplicates the HtmlTable mode.
- **RtfTable** - export to Rich Text Format using the Rtf Table element, to create a report structure.
- **RtfFrame** - export to Rich Text Format using the Rtf Frame element, to create a report structure.
- **RtfWinWord** - export to Rich Text Format using the Microsoft Word graphic element, to create a report structure.
- **RtfTabbedText** - export to Rich Text Format using the symbols of tabulation, to create a report structure.
- **Word2007** -export to Microsoft Word 2007. This format is supported starting with Microsoft Office 2007.
- **Odt** - export to the OpenDocument Writer file.

**Spreadsheets:**
- **Excel** - export to Microsoft Excel. The file is created using the BIFF (Binary Interchange File Format).
- **ExcelXml** - export to Microsoft Excel Xml. The file is created using the Xml. This format is supported starting with Microsoft Office 2003.
- **Excel2007** - export to Microsoft Excel 2007. This format is supported starting with Microsoft Office 2007.
- **Ods** - export to OpenDocument Calc file.

**Export as data:**
- **Csv** - export to CSV (Comma Separated Value).
- **Dbf** - export to dBase/FoxPro.
- **Xml** - export to Xml as data. This format is a saved DataSet.
- **Dif** - export to **DIF** (Data Interchange Format).
- **Sylk** - export to **SYLK** (Symbolic Link).

**Export as image:**
- **ImageGif** - export to GIF.
- **ImageBmp** - export to BMP.
- **ImagePcx** - export to PCX.
- **ImagePng** - export to PNG.
- **ImageTiff** - export to TIFF.
- **ImageJpeg** - export to JPEG.
- **ImageEmf** - export to Windows Metafile.

### 11.3.2 All Export Services

The **StiExportFormat** enumeration describes export formats. Brief information of exports is represented below.

**Export services to Adobe PDF and Microsoft XPS:**
- StiPdfExportService

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- StiXpsExportService

**Export services to HTML and MHT:**
- StiHtmlExportService
- StiMhtExportService

**Export services to Microsoft Excel and Open Document Calc:**
- StiExcelXmlExportService
- StiExcelExportService
- StiExcel2007ExportService
- StiOdsExportService

**Export services to text formats:**
- StiTxtExportService
- StiRtfExportService
- StiWord2007ExportService
- StiOdtExportService

**Export services to data:**
- StiCsvExportService
- StiDbfExportService
- StiXmlExportService
- StiDifExportService
- StiSylkExportService

**Export services to graphic formats:**
- StiBmpExportService
- StiGifExportService
- StiJpegExportService
- StiPcxExportService
- StiPngExportService
- StiTiffExportService
- StiEmfExportService

## 11.4 Formats with Fixed Page Layout

Stimulsoft Reports supports two exports with fixed page layout. What is the fixed page layout? This means that all elements of a page can be placed at any part of a page. In this case, if to change a position of one element then other components position will not be changed. These are formats to **PDF** (Portable Document Format), **Microsoft Power Point 2007/2010** and **XPS** (XML Paper Specification).

### 11.4.1 PDF

**PDF** (Portable Document Format) – is a file format created by Adobe Systems for document exchange used to create electronic editions using the Adobe Acrobat package. The PDF format is a file text

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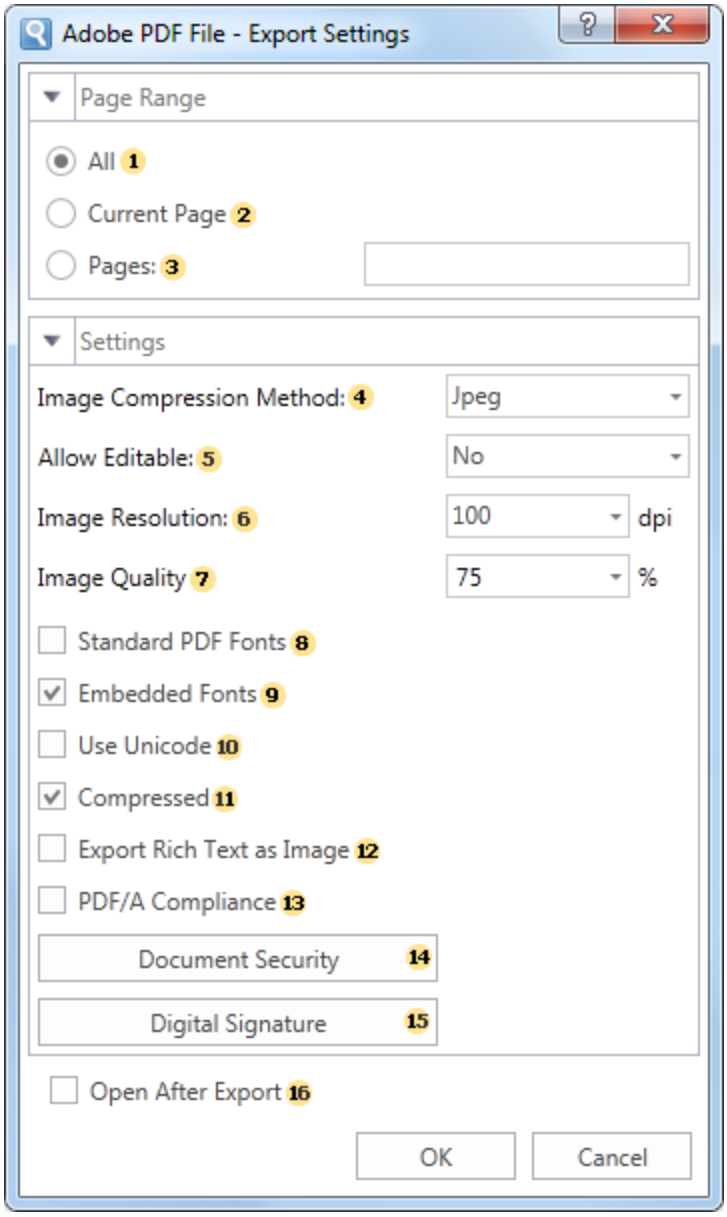
format that is used to publish documents on any platform and OS. The PDF document contains one or more pages. Each page may contain any components: text, graphic and illustrations, information, that provides navigation across the document.

Export to PDF is based on the "Adobe Portable Document Format, Version 1.3, second edition", using some elements of latest format specifications.

*Export options in PDF*




1 The checkbox **All** enables processing of all report pages.
2 The checkbox **Current Page** enables processing only the current (selected) report page.
3 The checkbox **Pages** has the field. This field specifies the number of pages to be processed. You

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can specify a single page, several pages (using a comma as the separator) and also specify a range by defining the start page and end page range separated with "-". For example, 1,3,5-12.

4 The **Image Resolution** is used to change DPI (image property PPI (Pixels Per Inch)). The greater the number of pixels per inch is, the greater is the quality of the image. It should be noted that the value of this parameter affects the size of the finished file. The higher the value is, the greater is the size of the finished file.

5 The option **Allow Editable** provides the ability to enable the mode in which, after exporting, it will be possible to modify components with the Editable property enabled. If No is set, then you can edit all components, unless it is not limited with safety parameters. If you select Yes then you can only edit components with the Editable property enabled.

**Notice**: Please note that restrictions on editing a Word document do not use encryption algorithms strong to cracking. Therefore, for the security of the document it is recommended to use a digital signature and security group.

**Notice**: When editing a text in the rendered report, the font may be different from the standard. Therefore, when the editing is performed by some other font, then this font will be embedded in the PDF file. This may lead to a significant increase of the size of the PDF.

6 The **Image Compression Method** allows defining the mode of image compression in the PDF file. The following modes are available:

- JPEG - compression with loss;
- Flate - compression without loss;
- Simple - monochrome mode without dithering;
- Ordered - monochrome image with dithering;
- FloydSt. - the most precise monochrome mode with dithering.

7 The **Image Quality** will be available only if you select the compression method JPEG. This option allows you to change the image quality. Keep in mind that if you change this option the size of the finished file will increase. The higher the quality is, the larger is the size of the finished file.

8 The flag **Standard PDF Fonts** allows you to use only the standard 14 Adobe fonts. If this option is enabled, the PDF file will use only 14 standard fonts and all other fonts of the report will be converted to these fonts.

**Notice:** Using the standard PDF fonts can cause problems with the formatting text in a PDF file. The font size used in the report may differ from the nearest standard size of the font to be used in a PDF file.

9 The flag **Embedded Fonts** provides the ability to embed the font files into the created PDF file. If this option is enabled, then when you export a report, the files of all the fonts used in the report will be included in a PDF file, and fonts in the resulting file will be displayed correctly in any PDF viewer. If the property is disabled, then to display the file correctly all the fonts used in the report must be installed on the computer.

**Notice:** If you enable this option, the file size may increase significantly. Especially when using a large number of fonts with different characters, for example Asian.

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10 The flag **Use Unicode** enables/disables the extended support for character encoding. It affects on the internal character encoding within the PDF file, and improves the copying of text from the PDF document.

**Notice:** Due to technical limitations of development platforms, the parameter is not implemented in all products.

11 The flag **Compressed**. Enables/disables compression of the final PDF file can be compressed using the check boxes. It is recommended to always include file compression.

12 The flag **Export Rich Text as Image** as Image enables/disables the conversion of the RTF text into the image. If the option is disabled, the Rich Text is decomposed into simpler primitives supported by the PDF format. The Rich Text with complex formatting (embedded images, tables) cannot always be converted correctly. In this case it is recommended to enable this option.

**Notice:** When you enable this option, the file size may increase significantly.

13 The flag **PDF/A Compliance** enables/disables support for standard long-term archiving of electronic documents. Compliance ensures that the document will have the same look in later versions of Adobe Acrobat. Enabling this option will also automatically include the options Embed Fonts and use Unicode.

14 The **Document Security** is a set of parameters with which you can protect documents from unauthorized access to them:

- In the field **User Password**, specify the password required to open the document. If you set the password, access to the opening file is limited and will occur only if you specify the correct password. If no password is specified, i.e. the field is left blank, then the file may be opened without restrictions.
- In the field **Owner Password**, specify the owner password to access the file. If you specify a password, access to the file operations, such as printing, copying etc will be available only after entering a password. If no password is specified, i.e., the field is left blank, the file operations will be available without restriction.
- The flag **Allow Print Document** enables/disables the restricted access to the printing operation. If this option is disabled, specifying the owner password is required to perform this operation. If enabled, then printing will be available for everyone who opens the document.
- The flag **Allow Modify Contents** enables/disables access to editing the text in the report. If this option is disabled, specifying the owner password is required to perform this operation. If enabled, then editing will be available for everyone who opens the document.
- The flag **Allow Copy Text** and Graphics enables/disables access to copying the information. If this option is disabled, specifying the owner password is required to perform this operation. If enabled, then copying will be available for everyone who opens the document.
- The flag **Allow Add or Modify Text Annotations** enables limited access to work with the annotations in the document. If this option is disabled, specifying the owner password is required to perform this operation. If enabled, then this operation will be available for everyone who opens the document.
- The flag **Encryption Key Length** allows selecting the length of the encryption key. The longer the length is, the more difficult is to decrypt the document, and, therefore, the safety of the document is higher.

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15 The **Digital Signature** is a good way to secure the document from forgery. The original document is subjected to a cryptographic transformation of data using a private key of the digital signature. This allows you to identify the owner of the signing certificate, as well as to find out the absence of distortion of information in the electronic document.

The flag **Use Digital Signature** enables/disables using a digital signature in the file. If this option is enabled, then a digital signature will be applied to the file. If disabled, then the digital signature is not applicable. The digital signature of the file requires a certificate in the system certificate store.

The certificate can be selected as follows:

The flag **Get Certificate From Crypto UI** enables/disables using the interface of the system cryptographic library. In this case, when you export the file to display the menu, select the certificate from the current certificate store. You must select a certificate from the list available.

**Notice.** In the web application, this method cannot be used because a certificate selection menu appears on the computer on which you are exporting, i.e. server. Accordingly, the user does not see it and cannot do anything with it. Export is simply waiting for selecting a certificate, and for the user it seems that the application is hung.

In the field **Subject Name String** you should write a line - the certificate identifier. The Identifier is the name of the certificate owner (full line) or a part of the name (substring).

16 The flag **Open After Export** enables/disables the automatic opening of the created document (after completion of exports), the default program for these file types.

#### 11.4.1.1 Embedded Fonts

By default all embedded fonts are optimized. Characters which are not used in a report are excluded. It allows decreasing the size of a file. But, for correct work of the editable field, the font should be complete. Therefore, for fonts, which are used in editable fields, optimization is not done. This increases the output file size. If Asian languages are used, the file size can be 15-20mb.

##### 11.4.1.1.1 Font Styles

There is one peculiarity of the export: all fonts for embedding to PDF files should be installed in the system. And for each font style a single font file should be installed.

For example, for the Arial font 4 files should be installed:
- "arial.ttf" - the regular style,
- "ariali.ttf" - the italic style,
- "arialb.ttf" - the bold style,
- "arialbi.ttf" - the bold-italic style;

This font is embedded correctly and all styles of this font can be output.

The Lucida Console font is usually represented with one file that contains the regular style (other styles

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are generated by the system). Therefore, when embedding such a font to the PDF file, only **regular** style will be output, instead of all styles of this font.

#### 11.4.1.2 Digital Signature

**Digital signature** is a requisite of an electronic document used to protect this document from falsification. This document is a result of cryptographic conversion of information using the **closed key** of the electronic signature and allows identifying the owner of the certificate of the key of the signature. Digital signatures are often used to implement electronic signatures

##### 11.4.1.2.1 Keys

Key is secret information is the secret information that is used by the cryptographic algorithm when creating and checking the digital signature. Usually for digital signature the pair of keys is used:
- Public key this key is known only for the owner;
- Public key this key is available for all users of cryptographic system.

In Digital Signature algorithms the signature is signed on the secret key of a user and is checked on the public key. So anyone may check what user put this signature. Keys are bound with specific certificates.

##### 11.4.1.2.2 Public Key Certificate

Public key certificate is an electronic document which utilizes a digital signature to bind together a public key with an identity — information such as the name of a person or an organization, their address, and so forth. The certificate can be used to verify that a public key belongs to an individual.

##### 11.4.1.2.3 Choosing Certificate

There are two ways to create the digital signature:
- using the interface of the system library of cryptograph;
- directly by specifying the string - certificate identifier.

In the first case it is necessary to set the **Get Certificate From CryptoUI** property to **true**. When exporting, the menu for selecting certificate from the current storage of certificates will be displayed. It is necessary to select one certificate from the list of available ones.

**Important:** In web applications this way cannot be used, because the menu of selecting a certificate is displayed on a computer on what the export is in process, in other words on the server. So the user cannot see and cannot do anything with it. In other words the export endlessly waits when the certificate will be selected.

In the second way, it is necessary to use the **SubjectNameString** property and write in it the string - certificate identifier. Identifier is the name of the certificate owner (full string) or a part of the name (substring).

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#### 11.4.1.2.4 Placing Digital Signature Identifier

By default the digital signature identifier is placed on the top of the first page of a document in the right corner, on margins. If it is required to set another position of the digital signature identifier, then it is necessary to place the text box with the description of the digital signature, and to set the **Tag** property to "**PdfDigitalSignature**".

### 11.4.1.3 Encryption

A PDF document can be encoded to protect the content from unauthorized access. A user may set the following parameters of encryption:
- User password;
- Owner password;
- Access permission;
- Key length.

#### 11.4.1.3.1 Passwords and Access Permission

According to the PDF specification, it is possible to set the access and two passwords: the public password and the owner's password. If there are no passwords and everything is allowed to do with the document, then the document is not encrypted. If even one password is set or access is not allowed, then the document is encrypted.

The public password allows opening and viewing documents, and also some actions are allowed:
- edit document;
- copy text and graphics from the document;
- add and change commentaries;
- print document.

The owner password provides access to the document, including password changing and access permission.

If the owner's password is set, and the public password is not set, then, when opening a document, the password is not asked.

#### 11.4.1.3.2 Key Length

The PDF Reference defines both 40-bit and 128-bit encryption. By default 40-bit key is used.
128-bit key is more secure the 40-bit key. But is some countries the key length of encryption is limited.

English: Quote from PDF Reference:
"A PDF document can be encrypted to protect its contents from unauthorized access. The encryption of data in a PDF file is based on the use of an encryption key computed by the security handler. Different

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security handlers can compute the key in a variety of ways, more or less cryptographically secure. In particular, PDF's standard encryption handler limits the key to 5 bytes (40 bits) in length, in accordance with U.S. cryptographic export requirements in effect at the time of initial publication of the PDF 1.3 specification."

#### 11.4.1.4 Compatibility of Different Versions

The information below shows the compatibility of Adobe Acrobat versions.

**Adobe Acrobat 5:**

- the PageScaling option from the file is ignored. By default the option in parameters of Adobe Acrobat is set to "None" but "Fit to printable area" value is used.

**Adobe Acrobat 5 & 6:**

- when editing Adobe Acrobat does not recognize the Unicode - only Latin characters are output (Latin-1 encoding), other characters are output as dots;
- if the "**UseUnicode**" option in export parameters is enabled, then it is necessary to embed fonts (the "**Embedded Fonts**" option), otherwise the will be output incorrectly.

**Adobe Acrobat 7:**

- it is necessary to embed fonts to the PDF file. Otherwise, when editing, any font will be replaced on the default font (usually on Tahoma).

**Adobe Acrobat 7 Reader:**

- there are some problems with 7.0.5 - 7.0.9 versions. In these versions the field is not included into the editing mode, if there are non Latin characters present in the text field (different from Latin-1).

### 11.4.2 XPS

**XPS** (XML Paper Specification) is the open graphic format of fixed page layout on the base XML (more precisely XAML-based) used to store printed output as electronic documents. This format was developed by Microsoft as alternative to the PDF format.The XPS document format consists of structured XML markup that defines the layout of a document and the visual appearance of each page, along with rendering rules for distributing, archiving, rendering, processing and printing the documents. The markup language for XPS is a subset of XAML that allows including vector graphic elements, using XAML to mark up the WPF-primitives. The XPS is a ZIP-archive that contains the files which make up the document. The archive includes page mark up (one file per each page of a document), text, embedded fonts, raster images, 2D vector graphics and other information.

*Export options in XPS*

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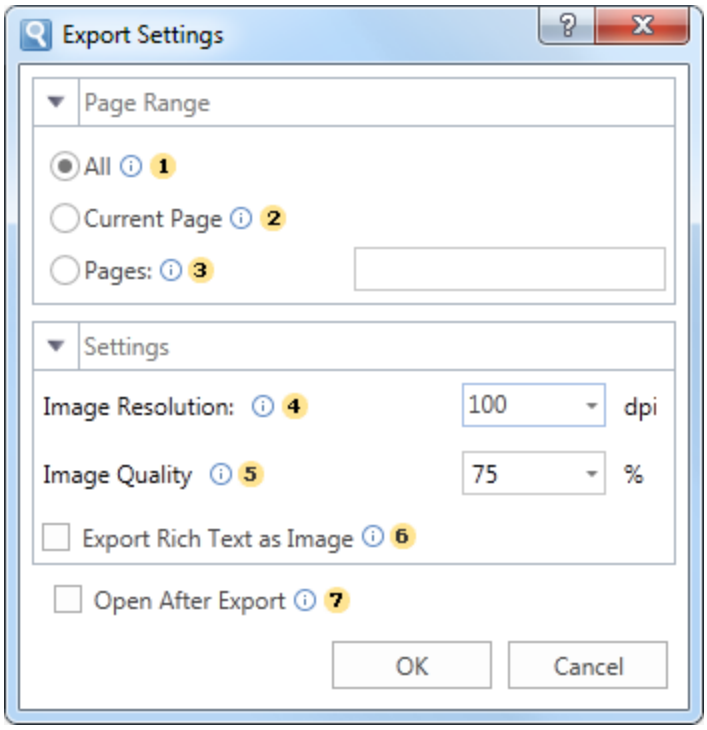


1 The checkbox **All** enables processing of all report pages.
2 The checkbox **Current Page** enables processing only the current (selected) report page.
3 The checkbox **Pages** has the field. This field specifies the number of pages to be processed. You can specify a single page, several pages (using a comma as the separator) and also specify a range by defining the start page and end page range separated with "-". For example, 1,3,5-12.
4 The **Image Resolution** is used to change DPI (image property PPI (Pixels Per Inch)). The greater the number of pixels per inch is, the greater is the quality of the image. It should be noted that the value of this parameter affects the size of the finished file. The higher the value is, the greater is the size of the finished file.
5 The **Image Quality** allows changing the image quality. Keep in mind that if you change this option the size of the finished file will increase. The higher the quality is, the larger is the size of the finished file.
6 The flag **Export Rich Text as Image** as Image enables/disables the conversion of the RTF text into the image. If the option is disabled, the Rich Text is decomposed into simpler primitives supported by the PDF format. The Rich Text with complex formatting (embedded images, tables) cannot always be converted correctly. In this case it is recommended to enable this option.

**Notice:** When you enable this option, the file size may increase significantly.

7 The flag **Open After Export** enables/disables the automatic opening of the created document (after completion of exports), the default program for these file types.

### 11.4.3 Microsoft Power Point 2007/2010

Microsoft PowerPoint is a presentation program developed by Microsoft. It is a part of the Microsoft

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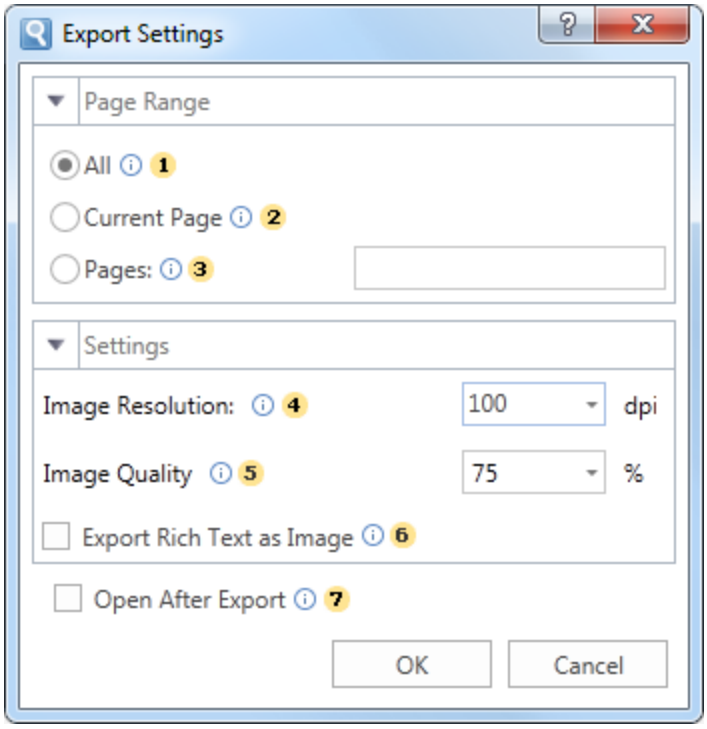
Office suite. PowerPoint presentations consist of a number of individual pages or "slides". Slides may contain text, graphics, movies, and other objects, which may be arranged on the slide. The presentation can be printed, displayed on a PC, or navigated through at the command of the presenter. In Stimulsoft Reports each report page corresponds to one slide.

*Export options in Microsoft Power Point*




1 The checkbox **All** enables processing of all report pages.
2 The checkbox **Current Page** enables processing only the current (selected) report page.
3 The checkbox **Pages** has the field. This field specifies the number of pages to be processed. You can specify a single page, several pages (using a comma as the separator) and also specify a range by defining the start page and end page range separated with "-". For example, 1,3,5-12.
4 The **Image Resolution** is used to change DPI (image property PPI (Pixels Per Inch)). The greater the number of pixels per inch is, the greater is the quality of the image. It should be noted that the value of this parameter affects the size of the finished file. The higher the value is, the greater is the size of the finished file.
5 The **Image Quality** allows changing the image quality. Keep in mind that if you change this option the size of the finished file will increase. The higher the quality is, the larger is the size of the finished file.
6 The flag **Export Rich Text as Image** as Image enables/disables the conversion of the RTF text into the image. If the option is disabled, the Rich Text is decomposed into simpler primitives supported by the PDF format. The Rich Text with complex formatting (embedded images, tables) cannot always be converted correctly. In this case it is recommended to enable this option.

**Notice:** When you enable this option, the file size may increase significantly.

7 The flag **Open After Export** enables/disables the automatic opening of the created document

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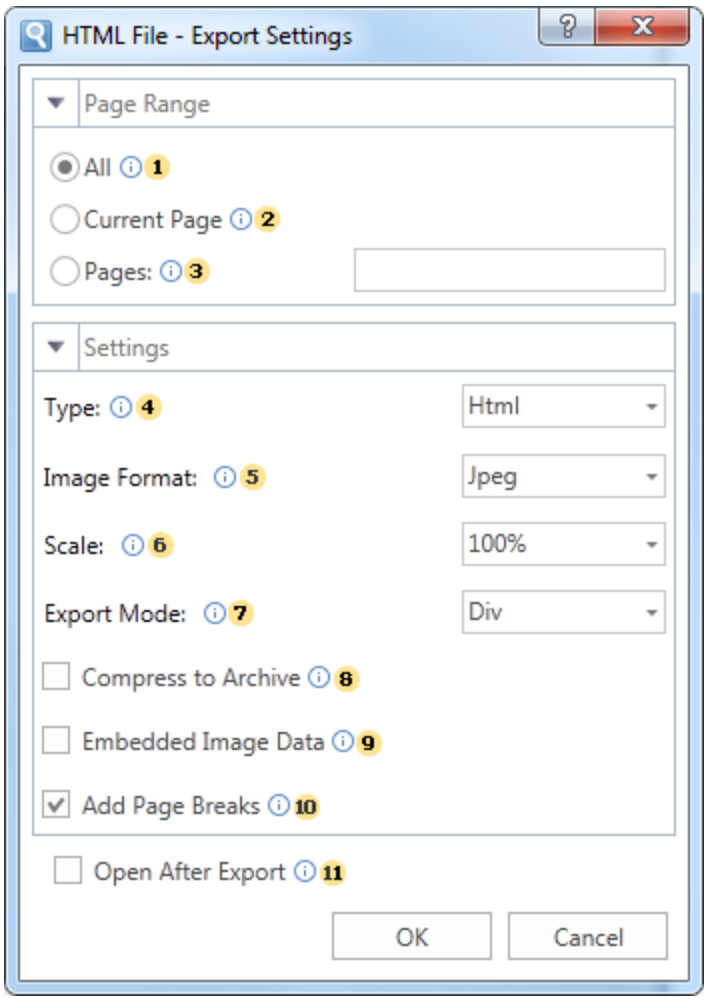
(after completion of exports), the default program for these file types.

## 11.5 Web Documents

There are two formats **HTML** (HyperText Markup Language), **HTML5** and **MHTML** (MIME HTML) are described in this chapter. The first and second formats are used for web page layout. The second format is a web page archive format used to bind resources together with the HTML code into a single file.

*Export options in Web*




1 The checkbox **All** enables processing of all report pages.
2 The checkbox **Current Page** enables processing only the current (selected) report page.
3 The checkbox **Pages** has the field. This field specifies the number of pages to be processed. You can specify a single page, several pages (using a comma as the separator) and also specify a range by defining the start page and end page range separated with "-". For example, 1,3,5-12.
4 The option **Type** provides the ability to determine a type of the file the report will be

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converted into.

**Notice**. If **Html5** is selected the following additional options are available:

- **Continuous Page**, which provides the ability to set the location of pages in the report as a vertical strip;
- The **Image Resolution** is used to change DPI (image property PPI (Pixels Per Inch)). The greater the number of pixels per inch is, the greater is the quality of the image. It should be noted that the value of this parameter affects the size of the finished file. The higher the value is, the greater is the size of the finished file;
- The **Image Quality** allows changing the image quality. Keep in mind that if you change this option the size of the finished file will increase. The higher the quality is, the larger is the size of the finished file.

5 With the **Image Format** it is possible to specify the format of images, which will be transformed into the image of the report.
6 The option **Scale** provides the ability to determine the size (scale) of report pages and items of the report after the export.
7 The option **Export Mode** provides the ability to determine the markup for the HTML page. The page layout is possible using tags div, span or table.
8 The flag **Compress to Archive** provides the ability, when exporting to HTML, to get the zip file after conversion. If this flag is on, the report processing occurs first, and then all the files and folders will be packed in a zip archive.
9 The flag **Embedded Image Data** provides the ability to embed images directly into the HTML file. In this case, it is necessary to consider that the correct displaying of this file depends on the browser being used. Not all browsers support the option to view the HTML file with embedded pictures.
10 The flag **Add Page Breaks** enables/disables the visual separator of report pages. If, for example, a few pages of the report are exported to a HTML page, it is not always possible to identify the beginning of the report page. To do this, you should select this option, then it will be, the beginning of the report page will be indicated by the appropriate delimiter.
11 The flag **Open After Export** enables/disables the automatic opening of the created document (after completion of exports), the default program for these file types.

### 11.5.1 HTML

**HTML** (HyperText Markup Language) is the predominant markup language for Web pages. The majority of web pages are created using the HTML language. The HTML language is interpreted by browser and shown as a document. HTML is a tag language of the document layout. It provides a means to describe the structure of text-based information in a document by denoting certain text as links, headings, paragraphs, lists, etc. Elements are the basic structure for HTML markup. Elements have two basic properties: attributes and content. Each attribute and each element's content has certain restrictions that must be followed for a HTML document to be considered valid. An element usually has a start tag (e.g. <element-name>) and an end tag (e.g. </element-name>).

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#### 11.5.1.1 Export Modes

There are three mode of export to HTML:
- **Div** - in this mode all objects of a report are converted to the **div** block element; the report is converted precisely, except for vertical text alignment;
- **Span** is the same as the Div mode but the span element is used;
- **Table** - in this mode all objects of a report are converted to the **table** block element; in this mode the vertical text alignment is correct but, if the WordWrap is disabled then the problem may occur with long lines of text.

#### 11.5.1.2 Export Images in HTML Format

Also it is possible to specify how to export images of a document. Images with transparency can be saved to the PNG format. It is important to remember that some browsers (foe example Internet Explorer 6) do not support images with transparency.

#### 11.5.1.3 Compatibility of Different Versions

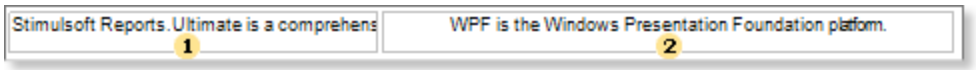
The following minimal web-browsers versions are required for correct HTML export:

- Internet Explorer 6.0 and higher;
- FireFox 1.5 and higher;
- Opera 7.5 and higher.

#### 11.5.1.4 Exporting Text Components

When exporting reports to the **HTML** format, it is necessary to take the following features of this format into consideration:
- if a text does not fit a table cell horizontally, then a browser automatically carries a text to the next page;
- if a text does not fit a table cell vertically, then a browser automatically increases height of a table cell.

Such a behavior of a text can be obtained in the **Net** and **WPF** viewers (**Win**-viewers) by setting **WordWrap** and **CanGrow** properties of a text component to **true**. In the **HTML** format (and in the **Web** viewer correspondingly), no matter what is the value of these two properties, the text component will be shown the same way. For example, put 2 text components on a report template. Insert long text to the first component and a short one to the second. Set **WordWrap** and **CanGrow** properties to **false**. The picture below shows a report template:




After rendering a report in the **Win**-viewer, a report will look like on a picture below:

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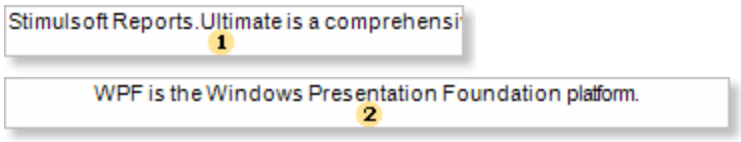
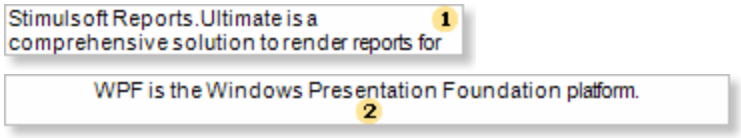
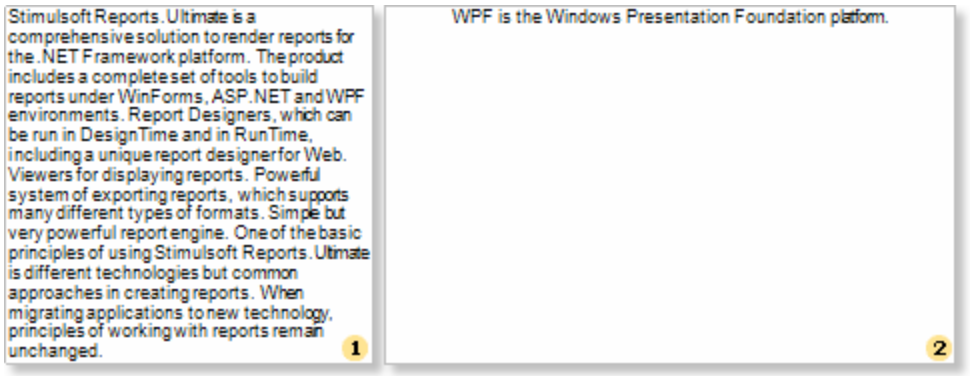


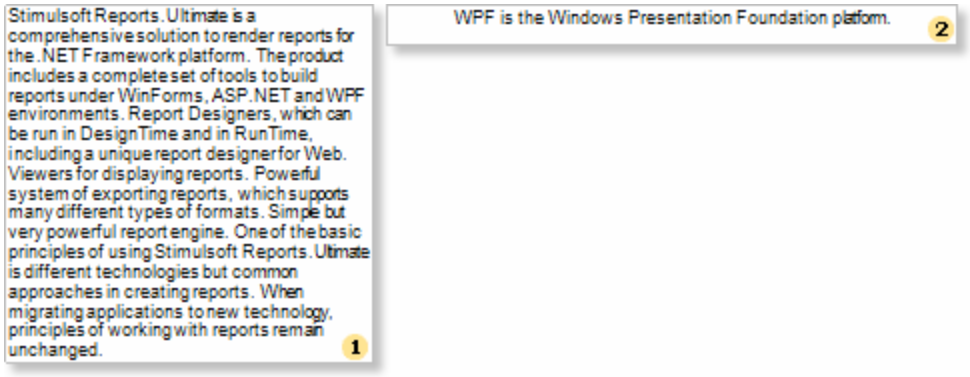

As seen on the picture, a text in the first text component did not fit and was cut, in the second text component the text fits a text component and shown without changes. Now set the **WordWrap** property to **true** for both components. After rendering, a report will look in the **Win** viewer like on the picture below:




As seen on the picture, a text in the first text component is wrapped to the second row. But the component is not grown by height, so the text does not fit this component and was cut. In the second component the text fit this component and shown without changes. In both ways the text in the **HTML** format in the **Web** will look the following way:


Stimulsoft Reports.Ultimate is a comprehensive solution to render reports for the .NET Framework platform. The product includes a complete set of tools to build reports under WinForms, ASP.NET and WPF environments. Report Designers, which can be run in DesignTime and in RunTime, including a unique report designer for Web. Viewers for displaying reports. Powerful system of exporting reports, which supports many different types of formats. Simple but very powerful report engine. One of the basic principles of using Stimulsoft Reports.Ultimate is different technologies but common approaches in creating reports. When migrating applications to new technology, principles of working with reports remain unchanged.
1
WPF is the Windows Presentation Foundation platform.
2

If to set the **Can Grow** properties of these texts components to **true**, then the report will look the same in the **Win** viewer and **Web** viewer:


Stimulsoft Reports.Ultimate is a comprehensive solution to render reports for the .NET Framework platform. The product includes a complete set of tools to build reports under WinForms, ASP.NET and WPF environments. Report Designers, which can be run in DesignTime and in RunTime, including a unique report designer for Web. Viewers for displaying reports. Powerful system of exporting reports, which supports many different types of formats. Simple but very powerful report engine. One of the basic principles of using Stimulsoft Reports.Ultimate is different technologies but common approaches in creating reports. When migrating applications to new technology, principles of working with reports remain unchanged.
1
WPF is the Windows Presentation Foundation platform.
2

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### 11.5.2 HTML5

HTML5 is a language for structuring and presenting content for the World Wide Web, and is a core technology of the Internet originally proposed by Opera Software.[1] It is the fifth revision of the HTML standard (created in 1990 and standardized as HTML4 as of 1997)[2] and as of December 2011 is still under development. Its core aims have been to improve the language with support for the latest multimedia while keeping it easily readable by humans and consistently understood by computers and devices (web browsers, parsers, etc.). HTML5 is intended to subsume not only HTML 4, but XHTML 1 and DOM Level 2 HTML as well.

### 11.5.3 MHT

**MHTML** (MIME HTML) is a web page archive format used to bind resources which are typically represented by external links (such as images, Flash animations, Java applets, audio files) together with HTML code into a single file. This file is a web archive and has the «**.mht**» extension. The content of a file is written as an Email message using the MIME standard: in the beginning of a file the HTML file is written. Then all resources in the base64 encoding with headers are written. Internet Explorer, Opera, Microsoft Word can work with the MHTML format.

## 11.6 Text Formats

This chapter describes exports formats of text files. In other words the files which are used to create text documents.

### 11.6.1 TXT

Text file (TXT) is a kind of computer file that is structured as a sequence of lines. A text file exists within a computer file system. The end of a text file is often denoted by placing one or more special characters, known as an end-of-file marker, after the last line in a text file.

Text files are commonly used for storage of information.

Export options in TXT:

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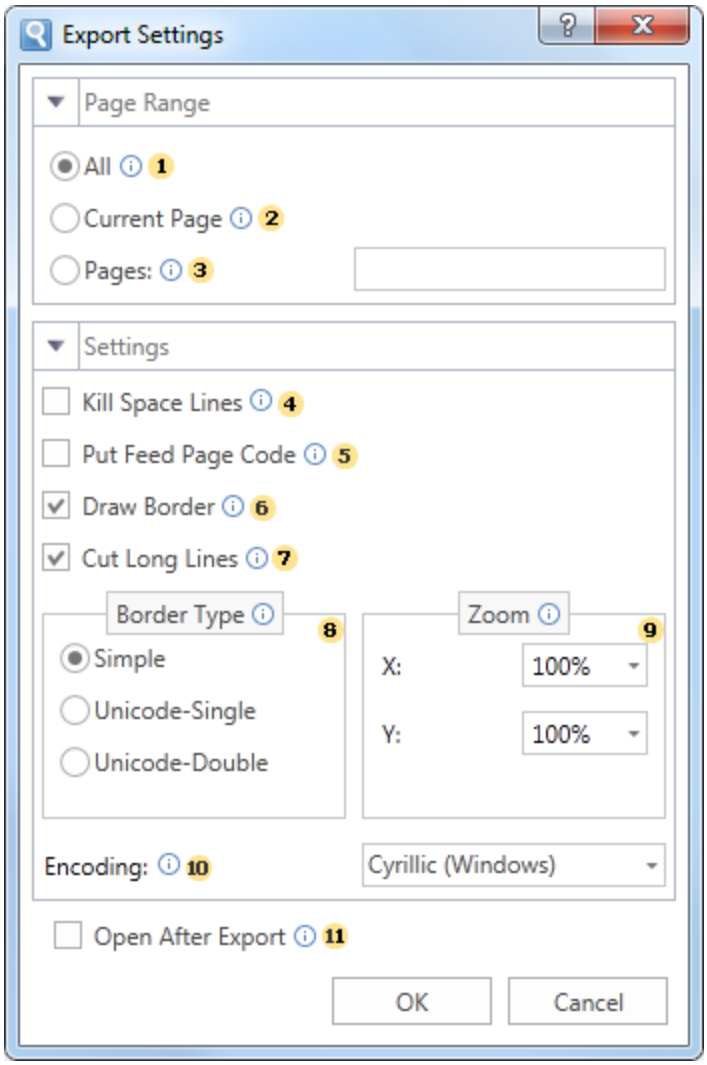


1 The checkbox **All** enables processing of all report pages.
2 The checkbox **Current Page** enables processing only the current (selected) report page.
3 The checkbox **Pages** has the field. This field specifies the number of pages to be processed. You can specify a single page, several pages (using a comma as the separator) and also specify a range by defining the start page and end page range separated with "-". For example, 1,3,5-12.
4 The checkbox **Kill Space Lines** provides the ability to delete blank lines in the document. If there are blank lines in a report, setting this flag will make the report more compact, but it should be taken into consideration that removing those lines can disrupt the formatting of other report elements.
5 The checkbox **Put Feed Page Code** provides an opportunity to select the end of the page with a special character.
6 The checkbox **Draw Border** enables/disables drawing borders of components with graphic symbols.
7 The checkbox **Cut Long Lines** provides the ability to cut lines by the margins of the component. If this option is enabled, the line length is limited to the margins of the component. If this option is disabled, the line will be displayed in its full length.
8 The option **Border Type** is used to enable a certain type of borders of components. The options are:

- **Simple** - drawing the borders of components with characters +, -, |.
- **Unicode-Single** - drawing the borders of components with box-drawing characters.

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- **Unicode-Double** - drawing the borders of components with double box-drawing characters.

9 The option **Zoom** provides the ability to set the report zoom horizontally and vertically.
10 The option **Encoding** provides the ability to set the text encoding of the report after exporting.
11 The checkbox **Open After Export** enables/disables the automatic opening of the created document (after completion of exports), the default program for these file types.

#### 11.6.1.1 Border Types

The border in the text mode can be drawn using simple symbols or using pseudographics. Using the **BorderType** property it is possible to choose the mode of border drawing. It may have the following modes:
- Simple - drawing a border using simple symbols such as "+", "-", and "|";
- UnicodeSingle - drawing a border using the symbols of pseudographics; symbols of solid border are used;
- UnicodeDouble - drawing a border using the symbols of pseudographics; symbols of double border are used.

#### 11.6.1.2 Column Width

When exporting to the text format, all coordinates and sizes of objects are recalculated to get the text appearance the same as it is in a report. You can control the conversion, by changing the zoom coefficients of ZoomX and ZoomY. The width of the columns of the output text is proportional to the width of the initial report. If you want to change the column width, it is possible to use the following methods:
- change the width of a column: it is necessary to specify the column width in characters in the **Tag** text box, the width will be set only for those lines which contain this text box;
- column width can be set globally via the **ColumnWidths** static property; in this case, the width of the columns is indicated starting from the left column, through the separator (a semicolon), for example, "10, 12, 45, 10, 10, 5, 20, 50 "; zero width of columns is ignored.

#### 11.6.1.3 New Export Modes

The old/new export mode is set using the **UseOldExportMode** property. The new mode is created on the base of the StiMatrix: if the wordwrap is enabled and a text cannot be placed in a cell then the cell height is increased automatically. By default the new mode is enabled.

### 11.6.2 RTF

Rich Text Format (RTF) is a free document file format developed by Microsoft for cross-platform document interchange. The first version of the RTF standard appeared in 1987. Since that time format specification was changed and added. RTF-documents are supported by many text editors.

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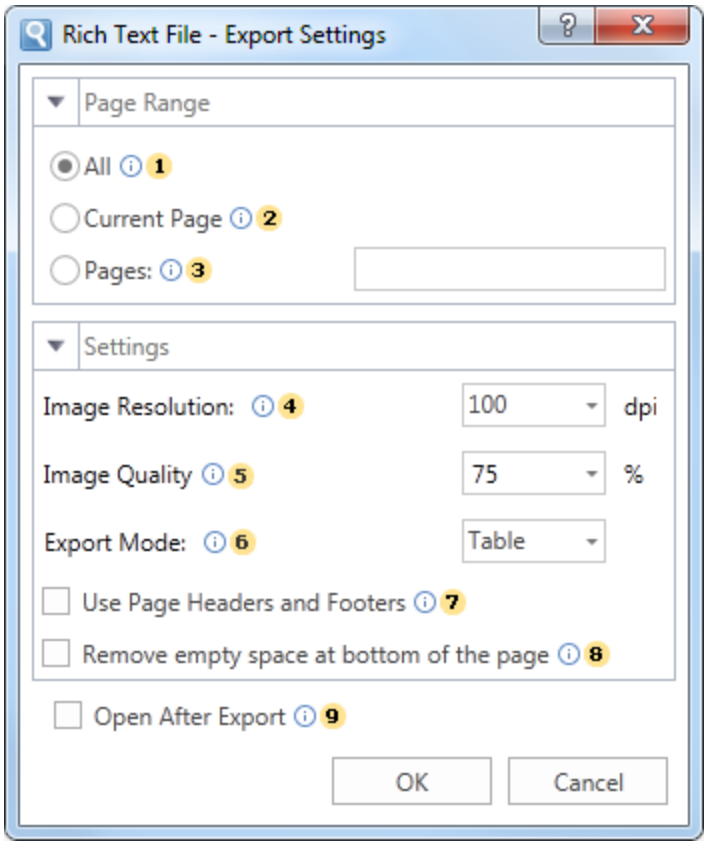
Export options in RTF:




1 The checkbox **All** enables processing of all report pages.
2 The checkbox **Current Page** enables processing only the current (selected) report page.
3 The checkbox **Pages** has the field. This field specifies the number of pages to be processed. You can specify a single page, several pages (using a comma as the separator) and also specify a range by defining the start page and end page range separated with "-". For example, 1,3,5-12.
4 The **Image Resolution** is used to change DPI (image property PPI (Pixels Per Inch)). The greater the number of pixels per inch is, the greater is the quality of the image. It should be noted that the value of this parameter affects the size of the finished file. The higher the value is, the greater is the size of the finished file.
5 The **Image Quality** allows changing the image quality. Keep in mind that if you change this option the size of the finished file will increase. The higher the quality is, the larger is the size of the finished file.
6 The checkbox **Export Mode** provides the ability to define the presentation of the report data after export. If you select **Table**, then, after exporting, the entire report will look like a table, where each report component is a table cell. All components are located in different cells with relations created between them. If the **Frame** is selected, then, after export, each component will be a single frame, but without relations between them.
7 The checkbox **Use Page Headers and Footers** is used to define the Page Header and Footer as the header and footer of the Word document. If this option is not set, then, after exporting, page header and footer will be a table cell or an individual frame. In case of editing a report they may change its location. If this option is enabled, the data bands will be output as objects a header and

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footer in the Word document.

**Notice:** If the checkbox **Use Page Headers and Footers** is on, it should be taken into consideration that, in this case, the height of the lines will be minimum allowable.

8 The checkbox **Remove Empty Space at Bottom of the Page** is used to display data one after the other while minimizing empty space at the bottom of the page. If this option is enabled, then, if empty space is available, the part of data from the next page will be moved to the empty space. If this option is disabled, the empty space is ignored and the report will be displayed in the viewer or in the tab Preview.
9 The flag **Open After Export** enables/disables the automatic opening of the created document (after completion of exports), the default program for these file types.

### 11.6.2.1 Export Modes

The export to the **RTF** format has 2 basic modes:
**Frames** - in this mode all objects of a report are converted to the **frame** rtf-objects; the report is converted precisely, but it is difficult to edit such a document.
**Table** - in this mode all objects of a report are converted to the single table; when converting, objects can be changed, but this document can be easily edited, and, therefore, this mode is more frequently used and this mode is the default mode of this export.

Also there are 2 modes of operation, which are obsolete and retained for compatibility:
**WinWord** - similar to Frames, but all the objects passed as "frame" objects of MS-Word.
**TabbedText** - the same as the export the Text format, the position of a text is set using blank spaces and tabulations.

#### 11.6.2.1.1 Table Modes

In this mode the whole report is converted into a single table. When exporting the report is converted into a single table. The document is easily editable but some objects can be changed.

Depending on the value of the **Use Page Headers and Footers** property the report is exported as follow:
value is set to **false** - the report is exported "as is" and will look the same as in preview;
value is set to **true** - the report is additionally processed, all changes are described in the text below.

The list of document changes:
PageHeaders and PageFooters are exported as MS-Word objects. So they are cut from the table and other bands are converted into a single page. It is very convenient because it is easy to correct the document, for example, to put or edit text in cells, change the cell size; all data are moved, and headers and footers of a page stay on their place. (**Notice**: the header and the footer are exported from the first page of a report, others are ignored; in addition the improvement was done: now the header is searched on the second page; if the property PrintOn of this header is set to ExceptFirstPage,

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then everything is exported correctly (using the RTF tags) - the header will not be output on the first page.

If the Header of the PrintOnAllPages property is enabled, then it is exported as the table header, and is correctly output on each page.

The height or rows in not exported (the "not set" mode; by default the "precise" mode is set).

If the **Tag** field is not empty, then the content of the **Tag** field is exported. The **Text** field is not exported. The following expression can be used to change MS-Word commands:

| | |
|---|---|
| #PageNumber# | The number of the current page (PAGE) |
| #TotalPageCount# | Total number of pages in the document (NUMPAGES) |
| #PageRef Bookmark# | The number of pages on what the bookmark is placed (PAGEREF) |

For example, the following expression can be written in the **Tag** field:

```
Page #PageNumber# of #TotalPageCount#
```

When exporting, #PageNumber# and #TotalPageCount# will be substituted on the "Page number" field and "Total Page" field. And they will be automatically changed.

The following string-commands can be written in the **Tag** field:

| | |
|---|---|
| rtfparagraph | The TextBox, RichTextBox and Image content is output as simple text, in the table break; |
| rtfnewpage | The page break is put before the text box |

Also it is possible to export a separate sheets of a template to separate sections of the document with the headers/footers. To do this, use the **ExcelSheet** property. in this case all pages of a report with the same value of the ExcelSheet property are combined in groups, then each group is exported as a separate section of the document with its headers/footers. By default, this property is not filled, and the report is exported as a single partition.

#### 11.6.2.2 Issues

MS-Word: if to set top and bottom margin of one of cells in the table row, the same margin will be set in all cells of the row. Therefore, if to set the top and bottom margins of the text box, then, after exporting, the same margin will be set for the row of the table and the text will be moved. In OpenOffice this works without problems.

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#### 11.6.2.3 Compatibility of Different Versions

The RTF format is based on the RTF specification version 1.4 from 9/1995. The RTF files can be opened in Microsoft Word starting with the 97 (Office 97) version. In Microsoft Word 95 the RTF will have the following limitation:

- does not support vertical alignment in cells;
- does not some parameters of a page;
- some colors and not shown correctly.

### 11.6.3 Word 2007/2010

Microsoft Word is a text processing software produces by Microsoft. It is a component of the Microsoft Office system. The first version was released for IBM PC's running DOS in 1983. Later there was a release for Apple Macintosh (1984), SCO UNIX, and Microsoft Windows (1989). Microsoft Word is the most popular text processors. Starting with first versions MS Word could write files in binary code with the «.doc» extension. The Word specification was secret and only in 2008 was published. The latest version of **Word 2007/2010** "uses by default" the XML based format: Microsoft Office Open XML. For a new format the «**.docx**» file extension is used. This format is a zip-archive that contains a text as XML, graphics, and other data. When exporting, a report is converted into one table. Such a document is easy to edit.

*Export options in Word*

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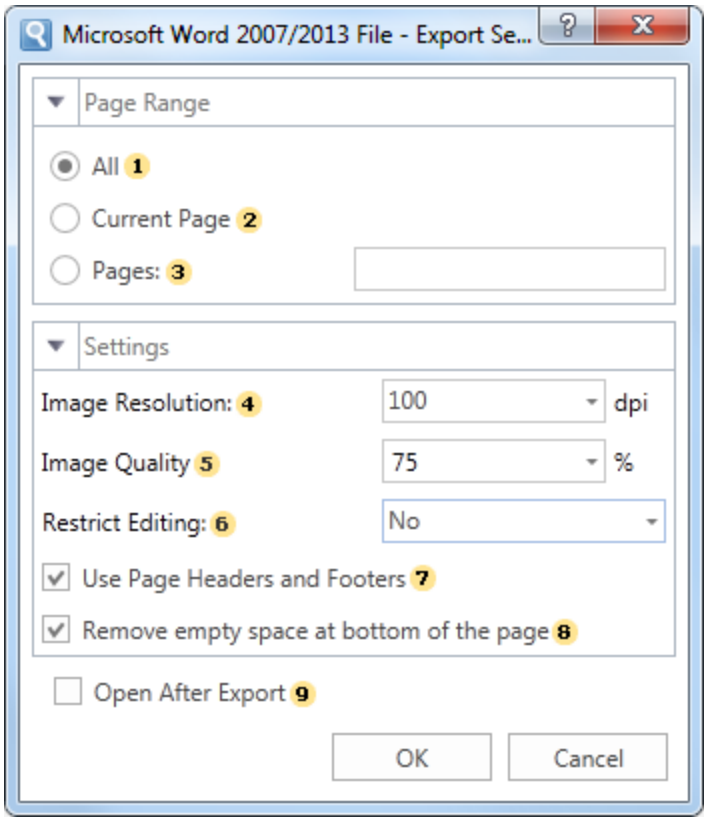


1 The checkbox **All** enables processing of all report pages.
2 The checkbox **Current Page** enables processing only the current (selected) report page.
3 The checkbox **Pages** has the field. This field specifies the number of pages to be processed. You can specify a single page, several pages (using a comma as the separator) and also specify a range by defining the start page and end page range separated with "-". For example, 1,3,5-12.
4 The **Image Resolution** is used to change DPI (image property PPI (Pixels Per Inch)). The greater the number of pixels per inch is, the greater is the quality of the image. It should be noted that the value of this parameter affects the size of the finished file. The higher the value is, the greater is the size of the finished file.
5 The **Image Quality** allows changing the image quality. Remember that if you change this option the size of the finished file will increase. The higher the quality is, the larger is the size of the finished file.
6 The parameter **Restrict Editing** provides the ability to restrict editing the Word document. The available modes are: **No** – without editing; **Yes**- editing is not allowed; **Except Editable Fields** - editing is allowed only for editable fields in the report. In this case, the Editable property of components must be set to true.
7 The checkbox **Use Page Headers and Footers** is used to define the Page Header and Footer as the header and footer of the Word document. If this option is not set, then, after exporting, page header and footer will be a table cell or an individual frame. In case of editing a report they may change its location. If this option is enabled, the data bands will be output as objects a header and footer in the Word document.

**Notice:** If the checkbox **Use Page Headers and Footers** is on, it should be taken into consideration that, in this case, the height of the lines will be minimum allowable.

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8 The checkbox **Remove Empty Space at Bottom of the Page** is used to display data one after the other while minimizing empty space at the bottom of the page. If this option is enabled, then, if empty space is available, the part of data from the next page will be moved to the empty space. If this option is disabled, the empty space is ignored and the report will be displayed in the viewer or in the tab Preview.
9 The flag **Open After Export** enables/disables the automatic opening of the created document (after completion of exports), the default program for these file types.

#### 11.6.3.1 Headers and Footers

Depending on the value of the **Use Page Headers and Footers** property a report is exported in the following way:
- the value is false - a report is exported "as is" and looks as in preview;
- the value is true - a report is additionally processed. All changes are described below.

The list of changes of the document:
- PageHeaders and PageFooters are exported as MS-Word objects. So they are cut from a table and all other bands are exported as one table. It is very convenient, if it is necessary to elaborate the document (add rows or edit a text in cells, change cell size); in this case all data are moved but headers and footers stay on their place. (Notice: a header and a footer of the first page are taken, others are ignored).
- Row height is not exported (the "not set" mode; by default - the "precise" mode).

##### 11.6.3.1.1 Page Numbering

If the Tag is not empty then the content of the Tag property is exported. The Text field is not exported. Also the string may contain the following expressions, which are changed on MS-Word commands:

| | |
|---|---|
| #PageNumber# | The number of the current page (PAGE) |
| #TotalPageCount# | Total number of pages in a document (NUMPAGES) |

For example, in the Tag property the following expression can be written:

```
Page #PageNumber# of #TotalPageCount#
```

When exporting #PageNumber# and #TotalPageCount# will be replaced on "PageNumber" field and "TotalPageCount" field and will be automatically changed together with text.

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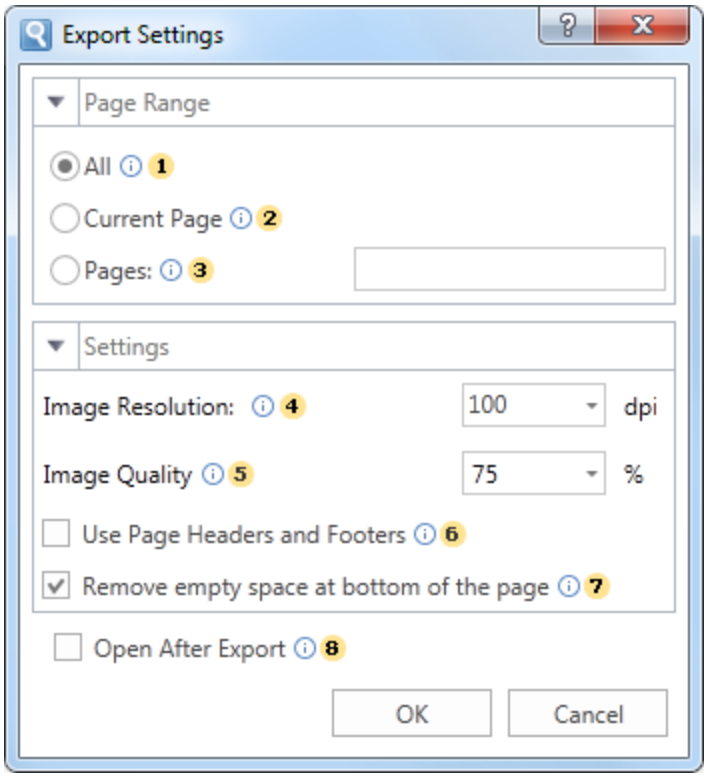
## 11.6.4 ODT

Open Document Text (**ODT**) is the open document for storing documents of the OpenOffice Writer, which is included into the OpenOffice.org package. OpenOffice.org is the open package of office applications created as alternative to Microsoft Office. OpenOffice.org was one of the first what supported the new open OpenDocument. Works on Microsoft Windows and UNIX systems: GNU/Linux, Mac OS X, FreeBSD, Solaris, Irix. OpenDocument Format (ODF) is the open file format for storing office documents, including text documents, spreadsheets, images, data bases, presentations. This format is based on the XML format.

OpenOffice Writer is the text processor and visual HTML editor, included into the OpenOffice. It is open software (LGPL license). Writer is similar to Microsoft Word and has approximately the same functionality. Writer allows saving documents in different formats including Microsoft Word, RTF, XHTML, and OASIS Open Document Format. Starting with the OpenOffice version 2.0, the OpenDocument Format is the default format for saving documents. File have the «.odt» extension. When exporting the report is converted into a single table. The document is easily editable but some objects can be changed.

*Export options in ODT*




1 The checkbox **All** enables processing of all report pages.
2 The checkbox **Current Page** enables processing only the current (selected) report page.
3 The checkbox **Pages** has the field. This field specifies the number of pages to be processed. You can specify a single page, several pages (using a comma as the separator) and also specify a range by defining the start page and end page range separated with "-". For example, 1,3,5-12.

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4 The **Image Resolution** is used to change DPI (image property PPI (Pixels Per Inch)). The greater the number of pixels per inch is, the greater is the quality of the image. It should be noted that the value of this parameter affects the size of the finished file. The higher the value is, the greater is the size of the finished file.
5 The **Image Quality** allows changing the image quality. Keep in mind that if you change this option the size of the finished file will increase. The higher the quality is, the larger is the size of the finished file.
6 The checkbox **Use Page Headers and Footers** is used to define the Page Header and Footer as the header and footer of the Word document. If this option is not set, then, after exporting, page header and footer will be a table cell or an individual frame. In case of editing a report they may change its location. If this option is enabled, the data bands will be output as objects a header and footer in the Word document.

**Notice:** If the checkbox **Use Page Headers and Footers** is on, it should be taken into consideration that, in this case, the height of the lines will be minimum allowable.

7 The checkbox **Remove Empty Space at Bottom of the Page** is used to display data one after the other while minimizing empty space at the bottom of the page. If this option is enabled, then, if empty space is available, the part of data from the next page will be moved to the empty space. If this option is disabled, the empty space is ignored and the report will be displayed in the viewer or in the tab Preview.
8 The flag **Open After Export** enables/disables the automatic opening of the created document (after completion of exports), the default program for these file types.

## 11.7 Spreadsheets

This group of exports create spreadsheets. They are exports to both different formats of Microsoft Excel and to OpenOffice Calc.

*Export options in Excel*

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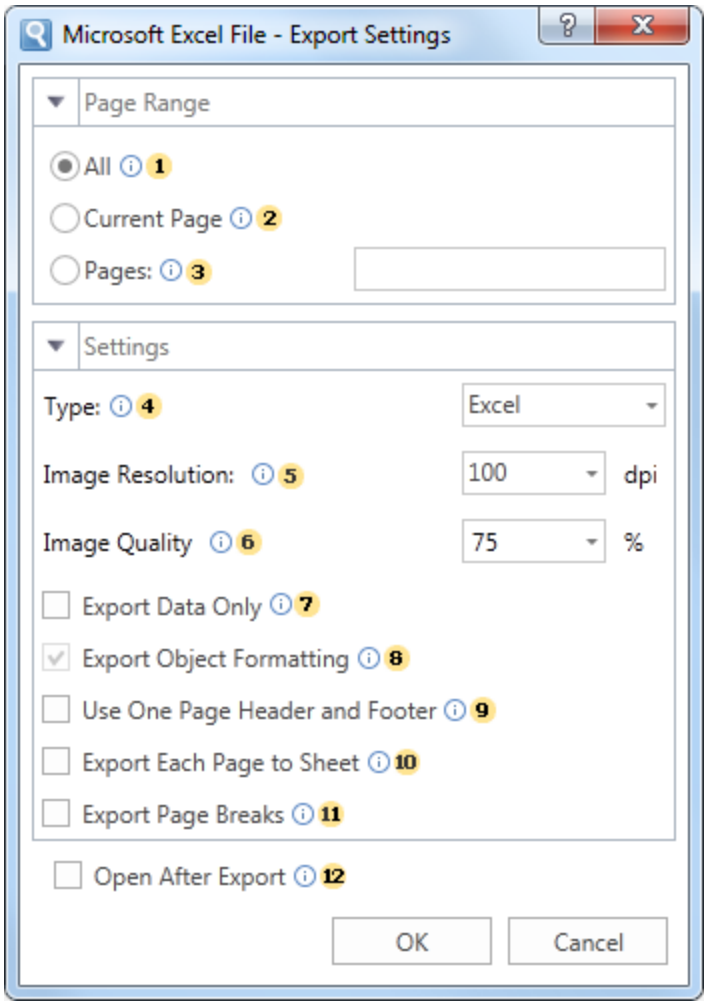


1 The checkbox **All** enables processing of all report pages.
2 The checkbox **Current Page** enables processing only the current (selected) report page.
3 The checkbox **Pages** has the field. This field specifies the number of pages to be processed. You can specify a single page, several pages (using a comma as the separator) and also specify a range by defining the start page and end page range separated with "-". For example, 1,3,5-12.
4 The option **Type** provides the ability to determine a type of the file the report will be converted into.
5 The **Image Resolution** is used to change DPI (image property PPI (Pixels Per Inch)). The greater the number of pixels per inch is, the greater is the quality of the image. It should be noted that the value of this parameter affects the size of the finished file. The higher the value is, the greater is the size of the finished file.
6 The **Image Quality** allows changing the image quality. Keep in mind that if you change this option the size of the finished file will increase. The higher the quality is, the larger is the size of the finished file.
7 The checkbox **Export Data Only** enables/disables the export of data only. If this option is enabled, information from the Data bands (component table, Hierarchical band) will be exported. Only these bands are processed. The rest bands and components are ignored. If this option is disabled, the entire report will be exported.
8 The checkbox **Export Object Formatting** is available only when you export the data. It provides

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the opportunity to apply formatting to them. If this option is enabled, the data will be exported with formatting applied in the report. If this option is disabled, the data formatting will be lost.

9 The checkbox **Use One Page Header and Footer** is used to get rid of repeats of headers and footers on the report pages. By default the page header and footer in the report are located on each page. The report in export to Excel is printed on a sizeless page. The page is able to grow in height as long as there are data. In this case, when you view the document in Excel, page headers and footers are output on the top and bottom of each report page. For example, if the report consists of 15 pages (in the Excel document it will all be placed on a single sheet), the page header and footer page will be output 15 times (each time on the top and bottom of the report page). To avoid this, you should enable this option, and then the page header will be displayed only on the top of the Excel sheet, and the page footer - in the end.

**Notice:** Enabling this option may have residual effects. For example, if the page header or footer has borders, then, when this option is enabled, these borders may be shown. It is recommended, before rendering the report, to enable the parameter of the report page, Unlimited Height. In this case, the report will be rendered on a sizeless single page. The page header and footer will be printed only once on the Excel sheet.

10 The checkbox **Export Each Page to Sheet** is used to export each report page on a separate Excel sheet. If this option is enabled, then each report page will be located on a separate sheet in Excel. If this option is disabled, the entire report will be printed on a single sheet of Excel.

11 The checkbox **Export Page Breaks** is used to display the borders of the report pages on the Excel sheet. In other words, if the report contains 10 pages, all of them are placed on one sheet after export. Enable this option to define the borders of pages. If this option is disabled, all report pages will be printed, and, if no other delimiters present, will be output in one sizeless page.

12 The flag **Open After Export** enables/disables the automatic opening of the created document (after completion of exports), the default program for these file types.

## 11.7.1 Excel

**Microsoft Excel** is a spreadsheet application written and distributed by Microsoft for Microsoft Windows. It allows using calculation, graphing tools, pivot tables and a macro programming language called VBA. So, it is the most popular table processor available for these platforms since version 5 in 1993.

Microsoft Excel up until Excel 2007 version used a proprietary binary file format called Binary Interchange File Format (BIFF) and **.xls** file extension. Specification was closed but since 2008 it was published. Besides, most of Microsoft Excel can read CSV, DBF, SYLK, DIF, and other formats.

### 11.7.1.1 Excel Sheets

By default a report is exported as one table to one sheet of Excel. Maximal number of rows on a sheet is unlimited. It depends on the Excel version and is set using the **MaximumSheetHeight** static property (by default 65534, for Excel XP and Excel 2003). If the number of rows is more than default then odd rows will be carried on the next sheet.

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Also it is possible to export each page of a report on a single sheet of Excel. To do this it is possible to set the **ExportEachPageToSheet** property to **true**.

Besides the forced Excel sheets creation they can be created using the **ExcelSheet** report property to what any value can be assigned. If some sheets has the same **ExcelSheet** value then they are joined and exported as one sheet. In this case the name of a sheet is a name of a value.

#### 11.7.1.2 Compatibility of Different Versions

The **XLS** format is based on the BIFF8 specification. Full support of this format is realized starting with the Excel 9.0 (Excel 2000).

**Excel 8.0 (Excel 97)**:
- does not support correct color;
- does not fully support the **Right to Left** mode.

**Excel 7.0 (Excel 95) and earlier versions:**
- does not support vertical alignment in a cell;
- does not support integrated cells;
- does not support some other parameters.

### 11.7.2 Excel XML

For storing documents as the basic Microsoft Excel format, right up to the Excel 2007 version, used its own binary format of files (BIFF) and the file extension was «.xls». In **Excel 2003** additionally, a new format based on XML (XMLSS) was used. This opened format is convenient for developers and is data oriented. The basic disadvantage of the format is impossibility to embed raster images.

### 11.7.3 Excel 2007/2010

For storing documents as the basic Microsoft Excel format, right up to the Excel 2007 version, used its own binary format of files (BIFF) and the file extension was «.xls». In **Excel 2007/2010**, the basic format is the Microsoft Office Open XML format and stores document in files with the «.**xlsx**» extension. The Excel 2007 is compatible with binary formats such as CSV, DBF, SYLK, DIF, and others.

#### 11.7.3.1 Sheets in Excel

By default a report is exported as one table to one Excel sheet. Maximal number of rows on a sheet in limited. It depend on the version of Excel and is set using the **MaximumSheetHeight** static property (by default 1048574 for Excel 2007). If rows are too many then redundant rows will be output on the next sheet. Also it is possible to export each page of a report to the single sheet Excel. To do this, it is necessary to set the **ExportEachPageToSheet** property to **true**.

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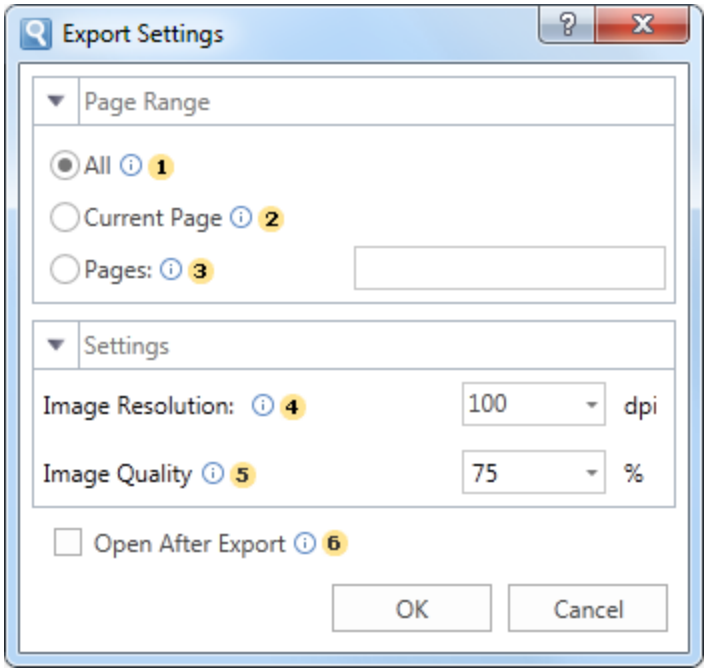
Each page of a report has the **ExcelSheet** report property to what any expression may be assigned. Numbers of pages with the same value in the "ExcelSheet" are combined and exported to a single sheet of Excel. The name of the sheet becomes the value of the expression.

## 11.7.4 ODS

Open Document Spreadsheet (**ODS**) is the opened format to store OpenOffice Calc spreadsheet documents, that is included into the OpenOffice.org package. OpenOffice.org is a free package of office applications developed as alternative to Microsoft Office. The OpenDocument is one of the first what started to support the opened format. it works on Microsoft Windows and UNIX-like systems: GNU/Linux, Mac OS X, FreeBSD, Solaris, Irix. OpenDocument Format (ODF) — an open document file format for storing and exchanging editable documents including text documents (such as notes, reports, and books), spreadsheets, drawings, databases, presentations. The format is based on the XML-format. The standard was jointly developed by public and various organizations and is available to all and can be used without restrictions. OpenOffice Calc is the table processor that is included into the OpenOffice and is a free software (LGPL license). Calc is similar to the Microsoft Excel spreadsheet and functionality of these processors is approximately equal. Calc allows you to saving documents to various formats, including Microsoft Excel, CSV, HTML, SXC, DBF, DIF, UOF, SLK, SDC. Starting with version OpenOffice 2.0, for document storage format by default OpenDocument Format, files are saved with the extension «. Ods». Starting with the OpenOffice version 2.0 for storing documents, by default, the OpenDocument Format is used. Files are stored with the «.ods» extension.

Рассмотрим основные параметры при экспорте в ODS:




1 The checkbox **All** enables processing of all report pages.
2 The checkbox **Current Page** enables processing only the current (selected) report page.
3 The checkbox **Pages** has the field. This field specifies the number of pages to be processed. You can specify a single page, several pages (using a comma as the separator) and also specify a range by

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defining the start page and end page range separated with "-". For example, 1,3,5-12.

4 The **Image Resolution** is used to change DPI (image property PPI (Pixels Per Inch)). The greater the number of pixels per inch is, the greater is the quality of the image. It should be noted that the value of this parameter affects the size of the finished file. The higher the value is, the greater is the size of the finished file.

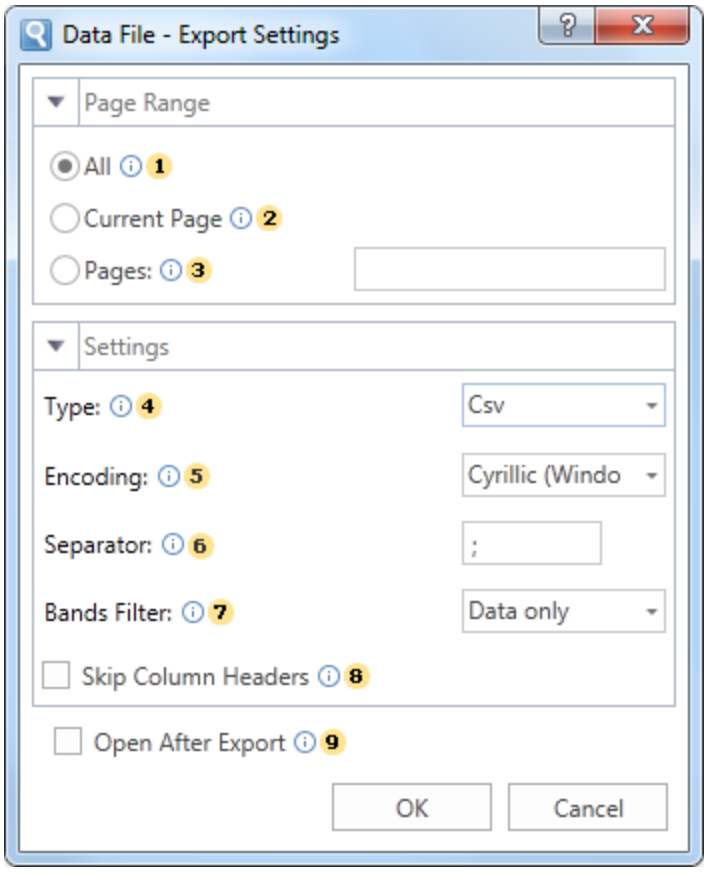
5 The **Image Quality** allows changing the image quality. Keep in mind that if you change this option the size of the finished file will increase. The higher the quality is, the larger is the size of the finished file.

6 The flag **Open After Export** enables/disables the automatic opening of the created document (after completion of exports), the default program for these file types.

## 11.8 Data

This is a group of file formats which are used to store table data.

*Export options in Data*




1 The checkbox **All** enables processing of all report pages.

2 The checkbox **Current Page** enables processing only the current (selected) report page.

3 The checkbox **Pages** has the field. This field specifies the number of pages to be processed. You can specify a single page, several pages (using a comma as the separator) and also specify a range by defining the start page and end page range separated with "-". For example, 1,3,5-12.

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4 The parameter **Type** provides the ability to determine a type of the file the report will be converted into.

**Notice:** Depending on the file type, parameters, and their number may vary. For example, when you select a format DIF or Sylk, the following options will be available:

- The option **Only Data Only** enables/disables the mode of exporting data only. If this option is enabled, information will be exported from the Data bands (the component table, Hierarchical band). Only these bands are processed, the rest are ignored. If this option is disabled, the entire report will be exported;
- The option **Use Default System Encoding** allows you to use the system encoding by default. Different encoding can be applied depending on the installed system. If this option is disabled, you must set the encoding by the standard.

5 The parameter **Encoding** is used to define file encoding.
6 The parameter **Separator** specifies delimiter between the data in the CSV file.
7 The parameter **Bands Filter** is used to apply a filtering condition in the export. The following options are available:

- **Data Only** - in this case only Data bands will be processed (the Table component, Hierarchical band);
- **Data and Headers/Footers** - Data bands will be processed (the Table component, Hierarchical band), and their headers/footers, if any;
- **All Bands** - all bands of the report will be processed.

8 The checkbox **Skip Column Headers** enables/disables the column headers. If the option is enabled, then column headers will not be displayed. If this option is disabled, then column headers (if present in the report) will be displayed.
9 The flag **Open After Export** enables/disables the automatic opening of the created document (after completion of exports), the default program for these file types.

## 11.8.1 CSV

**CSV** (Comma Separated Values) is a text format that is used to represent table data. Each string of the file is one row of the table. The values of each column are separated by the delimiter that depends on regional settings. The values that contain reserved characters (such as a comma or a new string) are framed with the double quotes ( ") symbol; if double quotes are found in the value they are represented as two double quotes in the file.

**Notice:** Only those data (components) can be exported to the CSV format which are placed on data bands. If the SkipColumnHeaders property is set to false then, additionally, column headers are exported as the first row.

### 11.8.1.1 Controlling Exports

The Tag property of each textbox in a Data band can be specified with the following elements that control the export:

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- Export Type : "FieldName"
- Column: "FieldName" "DataRow"

Several elements should be separated with the semicolon.

The "Export Type" element indicates for which export the field name is set. The values can be used: “dbf”, “csv”, “xml”, “default”. The "FieldName" element indicates the field name in the file. The own name can be specified to each type of export. If the name for each export is not specified then the name for the “default” type is taken. For example:

```
DBF : "Describe" ; CSV : "Description" ; default: "Default name"
```

The "Column" element indicates that additional field is added to exported data. The "FieldName" element indicated the name of a new field. The "DataRow" element indicates the content of a new field and can be an expression. For example:

```
Column: "SortField" "{Products.Categories.CategoryName}"
```

## 11.8.2 DBF

The **DBF** (DataBase File) is the format to store data and it is used as the standard way to store and pass information. The DBF file consist of a header section for describing the structure of the data in the file. There are several variations on the .dbf file structure.

**Notice:** Only data can be exported to the DBF format, in other words only the components, which are placed on data bands.

### 11.8.2.1 Controlling Exports

The following elements can be specified in the Tag property to control export:

- DataType [ : FieldLength [ : DecimalPartLength ] ]
- ExportType : "FieldName"
- Column: "FieldName" "DataString"

Several elements should be separated with the semicolon. The “DataType" element should be only one and should be placed first, other elements – if necessary.

Values of the "DataType" element are shown in the table below. If the data type is not set, then the **string** data type is taken by default. The "FieldLength" element sets fixed width of a data field. If the field width is not set, then the width is taken from the table. For the **string** type the default width is the longest string. The "DecimalPartLength" element sets the number of characters after comma. If it is not set, then the default number is taken.

| Data type | DBF data type (default size) | Description |
|---|---|---|

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| | | |
|---|---|---|
| int | Numeric (15 : 0) | Numeric |
| long | Numeric (25 : 0) | Numeric |
| float | Numeric (15 : 5) | Decimal |
| double | Numeric (20 : 10) | Decimal |
| string | Character (auto) | Text |
| date | Date (8) | Date |

Sample of using elements are shown in the table below.

| Type | Description |
|---|---|
| string : 25 | set the column width (25 characters) and cuts all long strings |
| float | converts decimal digit with the length 15 characters, 5 characters after comma |
| float :10 | converts decimal digit with the length 10 characters, 5 characters after comma |
| float :10 : 2 | converts decimal digit with the length 10 characters, 2 characters after comma |
| int :10 : 2 | converts integer digit with the length 10 characters; the second parameter is ignored |

**Notice:** If the integer part of a digit is long and cannot be placed into the specified field, then it is cut, so data are lost. For example, if the write «-12345,678» in the «float:8:3» field, then the «2345,678» will be output.

The "ExportType" element indicates for which export the field name is set. The values can be used: “dbf”, “csv”, “xml”, “default”. The "FieldName" element indicates the field name in the file (for the DBF the is automatically cut up to 10 characters). The own name can be specified to each type of export. If the name for each export is not specified then the name for the “default” type is taken. For example:

```
DBF : "Describe" ; XML : "Description" ; default: "Default name"
```

The "Column" element indicates that the additional field is added to the exported data. The "FieldName" element indicates the name of a new field. The "DataRow" element indicates the content of a new field and can be expression. For example

```
Column: "SortField" "{Products.Categories.CategoryName}"
```

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## 11.8.3 XML

**XML** (eXtensible Markup Language) is a text format that is used to store structured data (in exchange for existed files of data bases), for exchange of information between programs and also to create on its base the special markup languages (for example, XHTML), sometimes called dictionaries. XML is the hierarchical structure that is used to store any data. Visually this structure can be represented as the tree. XML supports Unicode and other encoding.

**Notice:** Only those data (components) are exported to the XML format which are placed on data bands.

### 11.8.3.1 Controlling Exports

The following elements can be specified in the Tag property to control export to XML:
- DataType
- ExportType : "FieldName"
- Column: "FieldName" "DataRow"

Several elements should be separated with the semicolon. The “DataType" element should be only one and should be placed first, other elements – if necessary.

Values of the "DataType" element are shown in the table below. If the data type is not set, then the **string** data type is taken by default.

| Data type | Description |
|---|---|
| int | Numeric |
| long | Numeric |
| float | Decimal |
| double | Decimal |
| string | Text |
| date | Date |

The "ExportType" element indicates for which export the field name is set. The values can be used: “dbf”, “csv”, “xml”, “default”. The "FieldName" element indicates the field name in the file. The own name can be specified to each type of export. If the name for each export is not specified then the name for the “default” type is taken. For example:

```
DBF : "Describe" ; XML : "Description" ; default: "Default name"
```

The "Column" element indicates that additional field is added to the exported data. The "FieldName" element indicates the name of a new field. The "DataRow" element indicates the content of a new field and can be expression. For example:

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```
Column: "SortField" "{Products.Categories.CategoryName}"
```

### 11.8.4 DIF

**DIF** (Data Interchange Format) is a text format that is used to exchange sheets between spreadsheets processors (Microsoft Excel, OpenOffice.org Calc, Gnumeric, StarCalc, Lotus 1-2-3, FileMaker, dBase, Framework, Multiplan, etc). The only limitation of this format is that the DIF format may contain only one sheet in one book.

### 11.8.5 SYLK

**SYLK** (Symbolic Link) format- this text format is used to exchange data between applications, specifically spreadsheets. Files of SYLK have «**.slk**» extension. Microsoft does not publish a SYLK specification, therefore work with this format in different applications can be different.

**Notice:** A SYLK file can be written in Unicode and read by some applications but anyway many applications which do support Unicode writes SYLK files into ANSI but not Unicode. Therefore, symbols which do not have representation in the system code page will be written as ('?') symbols.

## 11.9 Images

Export groups to graphic formats. All graphic formats can be divided in to types: bitmapped images and vector formats. Notice. On the current moment the export of monochrome image is supported only to the **BMP**, **GIF**, **PCX**, **PNG**, **TIFF** format. So the **DitheringType** property works only for these exports.

*Export options in Image*

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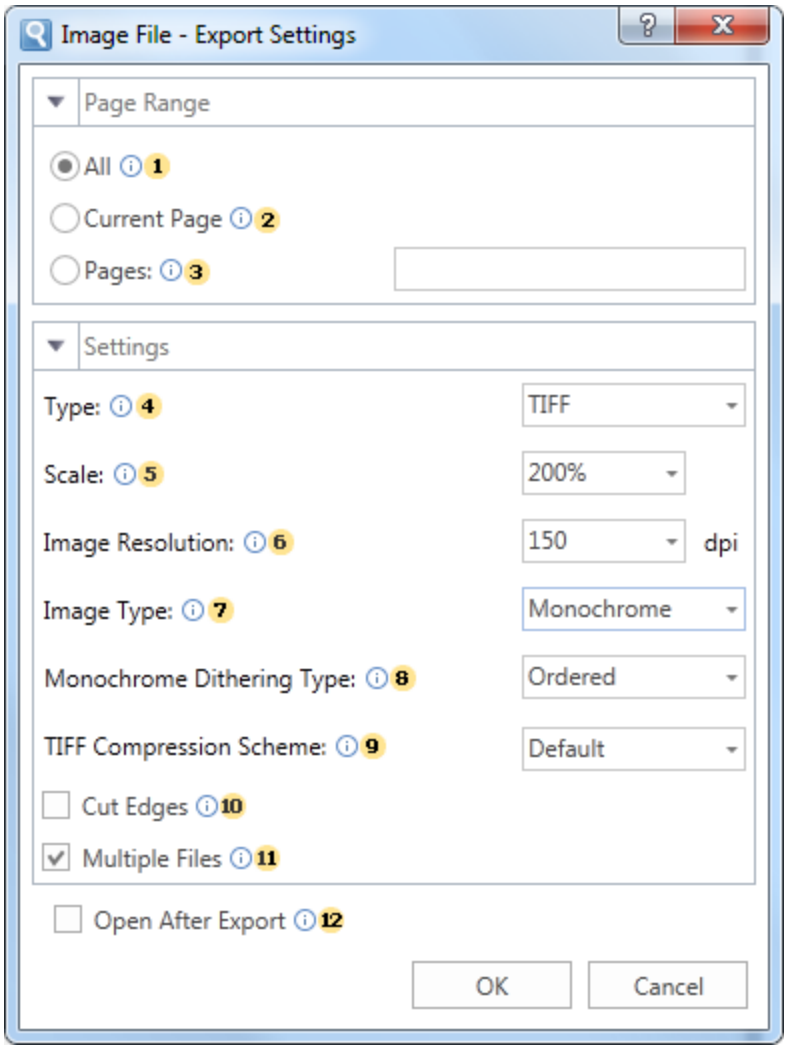


1 The checkbox **All** enables processing of all report pages.
2 The checkbox **Current Page** enables processing only the current (selected) report page.
3 The checkbox **Pages** has the field. This field specifies the number of pages to be processed. You can specify a single page, several pages (using a comma as the separator) and also specify a range by defining the start page and end page range separated with "-". For example, 1,3,5-12.
4 The option **Type** provides the ability to determine a type of the file the report will be converted into.
5 The option **Scale** allows you to increase/decrease the size of the report after export. It should also be taken into consideration that the smaller the scale is selected, the greater is the number of pixels per inch, and vice versa.
6 The **Image Resolution** is used to change DPI (image property PPI (Pixels Per Inch)). The greater the number of pixels per inch is, the greater is the quality of the image. It should be noted that the value of this parameter affects the size of the finished file. The higher the value is, the greater is the size of the finished file.
7 The option **Image Type** provides the ability to define the color scheme of the image.

- **Color** - an image after export will fully comply with the image in the report;
- **Серый** - an image after export will be gray.
- **Монохромный** - images will be strictly black and white. At the same time, it should be taken

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into consideration that monochrome images have three modes None, Ordered and FloydSt.

8 The option **Monochrome Dithering Type** allows you to determine the type monochrome color mixing: **None** - no dithering, **Ordered**, **FloydSt**. - with dithering.
9 The option **TIFF Compression Scheme** provides the ability to define a compression scheme for TIFF files.
10 The checkbox **Cut Edges** provides the ability to display a report without page edges. If this is enabled, then when you export the report the page edges will be cut off. If this option is disabled, the report page will be displayed with the specified edges.
11 The checkbox **Multiple Files** is available when exporting to TIFF. By default, each report page is a separate image. When exporting to TIFF you can put multiple images in a single file by disabling the option. You need a special viewer to view the TIFF file that contains multiple images.
12 The flag **Open After Export** enables/disables the automatic opening of the created document (after completion of exports), the default program for these file types.

### 11.9.1 BMP

**BMP** (Bitmap) is an image file format used to store bitmap digital images. Initially the format could store only DDB (Device Dependent Bitmap) but today the BMP format stores device-independent rasters (DIB - Device Independent Bitmap). Color depth in this format varies from 1 to 48 bits per pixel. The maximal image size is 65535×65535 pixels. An image can be compressed but often is stored in uncompressed and has big size of the file. Many programs work with the BMP format because its support is integrated into Windows and OS/2.

### 11.9.2 GIF

**GIF** (Graphics Interchange Format) is a format to store graphic images. The GIF format can store compressed images, supports up to 8 bits per pixel, allowing a single image to reference a palette of up to 256 distinct colors. The GIF format was introduced by CompuServe in 1987 and has since come into widespread usage on the World Wide Web. In 1989 the format was modified (GIF89a), and transparency and animation was added. GIF uses LZW-compression. It allows reducing the file size without degrading the visual quality (logos, schemes). GIF is widely used in World Wide Web.

### 11.9.3 PNG

**PNG** (Portable Network Graphics) - is a bitmapped image format that employs lossless data compression. PNG was created to improve and replace more simple GIF format, and to replace more complicated TIFF format. In compare with the GIF format, the PNG format supports RGB images without color losses, supports alpha channels, and uses DEFLATE (open algorithm of compression), that provides higher compression of multicolored files. The PNG format is usually used in World Wide Web and for graphic editing.

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### 11.9.4 TIFF

**TIFF** (Tagged Image File Format) is a file format for storing images. Originally, the TIFF format was created by the Aldus company in cooperation with Microsoft for using with PostScript. TIFF became popular for storing high-color-depth images, and is used for scanning, fax, to identify text, polygraphy and widely used in graphic applications. This format is flexible. It allows saving photos in different color spaces, and to use different algorithms of file compression, and to store a few images in one file.

### 11.9.5 JPEG

**JPEG** (Joint Photographic Experts Group) is a format to store images. This format was created by C-Cube Microsystems as effective method to store high-color-depth images. For example, scanned photos with smooth variations of tone and color. Algorithm of compression with losing information is used in the JPEG format. This means that some visual quality is lost in the process and cannot be restored. It is necessary to get the highest coefficient of compression. Unpacked JPEG images are rarely have the same quality as original image but differences are insignificant. Compression ratio is usually set in conventional units, for example from 1 to 100. 100 is the best quality and 1 is the worst quality. The better quality the bigger file size.

### 11.9.6 PCX

**PCX** is a format to store images. This format was used in the ZSoft PC Paintbrush graphic editor (one of the most popular programs) for MS-DOS, text processors and Microsoft Word and Ventura Publisher. This is not so popular format analogue of BMP but is supported with such graphics editors as Adobe Photoshop, Corel Draw and others. The algorithm of compression is very quick but is not effective for compression of photos and other detailed computer graphics. Today this format is not displaced with formats which supports better compression. These formats are GIF, JPEG, and PNG.

### 11.9.7 EMF

**WMF** (Windows MetaFile) is a universal graphics file format on Microsoft Windows systems. This format was created by Microsoft and is an integral part of Windows because this file stores a list of function calls that have to be issued to the Windows graphics layer GDI in order to display an image on screen.

WMF is a 16-bit format. This format was introduced in Windows 3.0. A 32-bit version is called Enhanced Metafile **EMF** (Enhanced Metafile). The EMF format supports many new commands, supports work with the GDI+ library, and also is used as a graphic language for drivers of printers.

### 11.9.8 SVG

**SVG** (Scalable Vector Graphics) is an XML-based file format for describing two-dimensional vector graphics, both static and dynamic. The **SVG** specification is an open standard. **SVG** supports scripting

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and animation. The vector image is composed of a fixed set of shapes.
SVG allows three types of graphic objects:
- Vector graphics;
- Raster graphics;
- Text.

The Images below shows the difference between exporting Bitmap format and SVG (vector) format.

Bitmap Formats

SVG Format

### 11.9.9 Compressed SVG

In addition to the **SVG** file format, there is a **compressed SVG** (with file extension **SVGZ**), which applies industry-standard, nonproprietary "gzip" compression (an open-source variant of Zip compression) to **SVG** files. Compressed SVG files are typically 50 to 80 percent smaller than SVG files. **SVG** files are compact and can be used to provide high-quality graphics on the Web.

### 11.9.10 Dither

**Dither** is an intentionally applied form of noise, when processing digit signals. It is used in most often surfaces in the fields of digital audio and video. The following image shows (from left to right) original image and the result of export to monochrome image. There are three modes of **DitheringType**: **Ordered**, **FloydSteinberg**, **None**.

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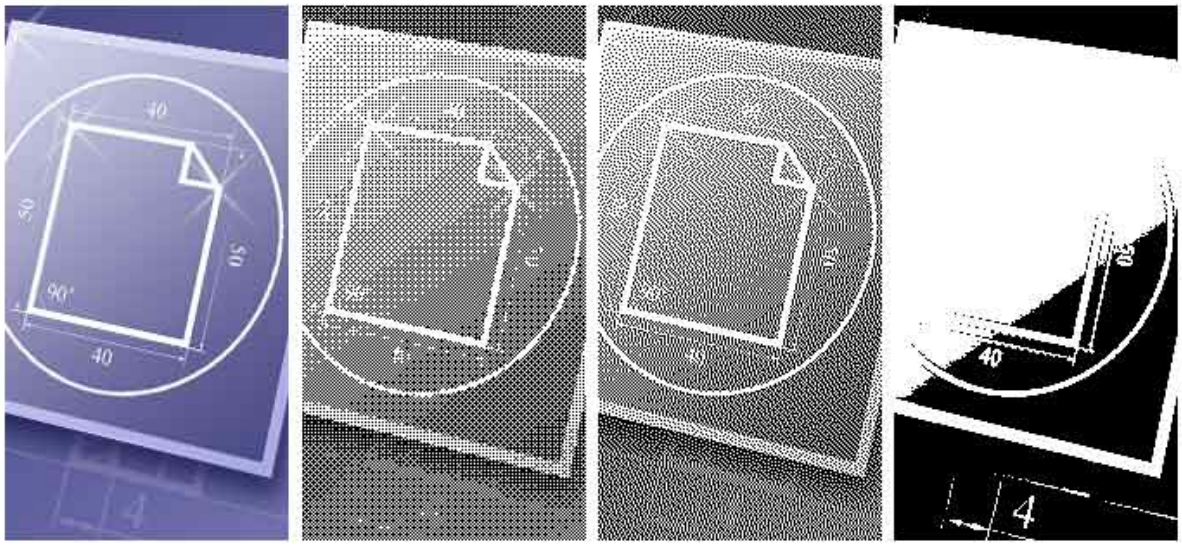


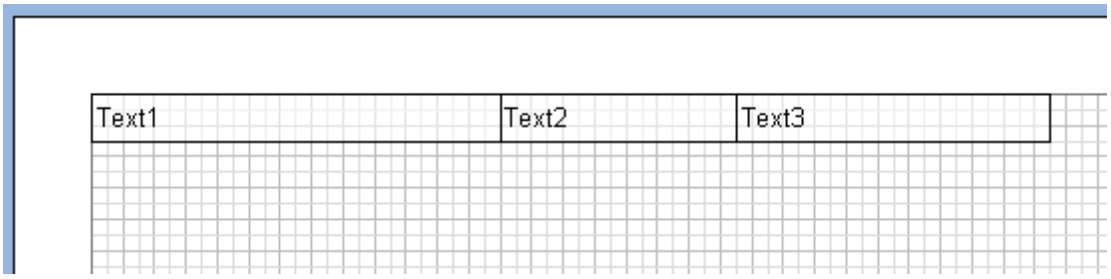
**Notice:** On the current moment the export of monochrome image is supported only to the PCX format. So the DitheringType property works only for this export. Different images may look differently in these modes. The **FloydSteinberg** is the best mode to output an image but the file size is too big.

## 11.10 How to Create Report for Export?

Many exports have the table mode. In this mode the whole report is converted into one table. Creating correct templates from the source code allows making the table look much better, decrease the size of the file, increase the speed of working with export. Therefore, when using the table mode of export it is important to follow some recommendations:

- use the "Align to Grid" button of the designer. This will decrease the number of rows and columns in the output file; also this allows avoiding very small gaps between components (some formats "do not like" table with very small columns);
- put components on the data band at the same level (see the picture below); this will decrease the number of rows and columns in the output file;

For example: put three components in the designer. They should be placed without gaps. See the picture below:




As a result we get a simple table: one row and three columns.

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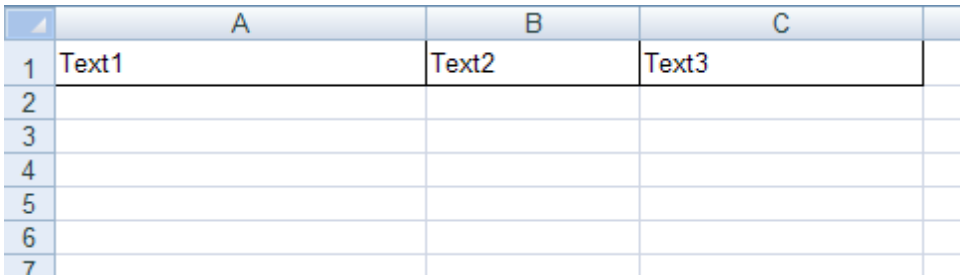
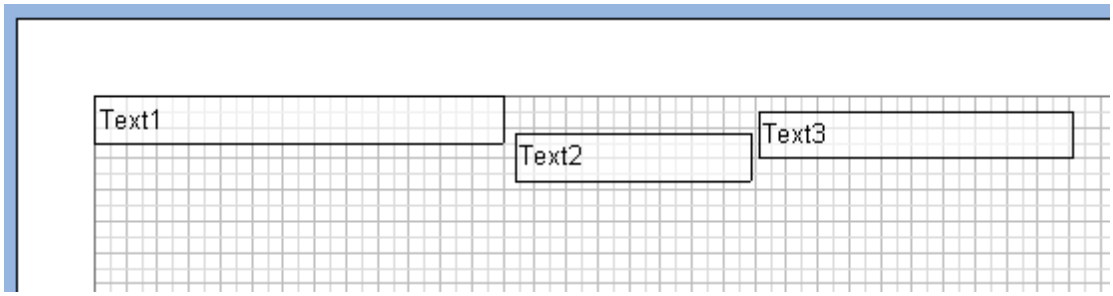
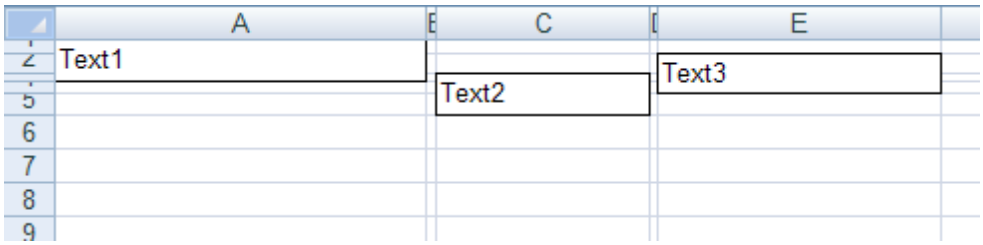



Put three components as seen on the picture below.




As a result we get the Excel table: five rows and three cells (see the picture below). It is not convenient to edit such a table, the file size, time of export, and required memory are increased in some times.




do not use the **Autowidth** property. This property increases the number of columns in the exported file which is proportionally to number of records.

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| | A | B | C | D | E | F | H | I | J | L | M | N |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Company | | | | | | | | | | | |
| 2 | Alfreds Futterkiste | | | | | | | | | | | |
| 3 | Ana Trujillo Emparedados y helados | | | | | | | | | | | |
| 4 | Antonio Moreno Taquería | | | | | | | | | | | |
| 5 | Around the Horn | | | | | | | | | | | |
| 6 | Berglunds snabbköp | | | | | | | | | | | |
| 7 | Blauer See Delikatessen | | | | | | | | | | | |
| 8 | Blondesddsl père et fils | | | | | | | | | | | |
| 9 | Bólido Comidas preparadas | | | | | | | | | | | |
| 10 | Bon app' | | | | | | | | | | | |
| 11 | Bottom-Dollar Markets | | | | | | | | | | | |
| 12 | B's Beverages | | | | | | | | | | | |
| 13 | Cactus Comidas para llevar | | | | | | | | | | | |
| 14 | Centro comercial Moctezuma | | | | | | | | | | | |

| | A |
|---|---|
| 1 | Company |
| 2 | Alfreds Futterkiste |
| 3 | Ana Trujillo Emparedados y helados |
| 4 | Antonio Moreno Taquería |
| 5 | Around the Horn |
| 6 | Berglunds snabbköp |
| 7 | Blauer See Delikatessen |
| 8 | Blondesddsl père et fils |
| 9 | Bólido Comidas preparadas |
| 10 | Bon app' |
| 11 | Bottom-Dollar Markets |
| 12 | B's Beverages |
| 13 | Cactus Comidas para llevar |
| 14 | Centro comercial Moctezuma |

On the left picture the number of columns is 14, and this case is equal in number of data rows. If to disable the **AutoWidth** property then only one column will be output (see the right picture). Accordingly, the file size of a report, shown of the right picture, is some times smaller then the file of the report shown on the left picture and the export works faster.

**Notice:** Number of columns is very important for the text editors. For example, MS Word allows no more than 64 columns; if the table has more than 64 columns then the document is output incorrectly.

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